

Attachment

**Report Submitted by SCAG to Caltrans Storm Water Program
Integrating Hydrologic and Jurisdictional Information**

Integrating Hydrologic and Jurisdictional Information

A Report for the Caltrans Environmental Analysis Section

Presented by

**Southern California Association of Governments
818 West Seventh Street – 12th Floor
Los Angeles, California 90017**

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MAPS

(See Attachment)

1: Introduction, or “New Terms of Success”

This report is the first in a series of reports by the Southern California Association of Governments (SCAG) prepared for the Stormwater Group in the Environmental Analysis section of California Department of Transportation (Caltrans). This series responds to recent concerns that water quality protection, stormwater runoff management and regional transportation planning activities become more fully integrated. These concerns reflect the view that integrated transportation planning will, over the long-term, be more protective of the environment and cost-effective. With the use of this integrated approach in new projects it is expected that the need for future costly retrofit measures can be minimized.

This first report creates a frame for reports and recommendations that will follow. The presentation of hydrology unit (or watershed) boundaries and the local jurisdictions within them begins to describe the new terms of engagement for public policy on water quality matters. Historically, local governments have developed service delivery strategies within the boundaries of city limits. Now, with the emergence of more stringent stormwater permits, local governments have been forced to develop strategies that consider hydrological realities quite independent of city limit boundaries.

At the present time stormwater permits are defined by political jurisdictions, not by watershed or hydrology areas. However, the impact of requirements appearing in new stormwater permits are such that compliance measures are now seen by water quality planners as requiring "regional solutions" rather than city-by-city solutions. Given the need for fiscal efficiency and wider public awareness of water problems in our ecosystem, future stormwater regulations are likely to be modified. Rather than permits issued according to county and city boundaries, it can be expected that stormwater permits will be organized by watershed or hydrologic boundaries.

In the meantime--and in preparation for this change--it is advantageous for water quality planners to have information that assists local governments and others in this more

complex policy and planning environment. Each local entity now has the challenge of understanding its position within a watershed that has other local entities as stakeholders too. This responsibility is certain to put new demands on the intergovernmental processes between jurisdictions, especially when so many other factors give rise to competing interests and goals.

The expense associated with permit compliance, along with the scarcity of local fiscal resources, underscores the need for new levels of cooperative planning and implementation among local entities. In earlier stormwater permits when compliance requirements were less stringent, stand-alone city efforts could be justified. Now, with new pressures impacting local governments, this strategy is much less tenable. As a result, those cities that appreciate the new terms of success are using a mantra that says, "together we can be smart and succeed".

The information in this report contributes to these collaborative water quality planning efforts. With this information it will be possible to identify the "natural" partners for action in the SCAG region's various watersheds. These new partnerships will work with and within natural conditions to reduce existing water quality impairments and prevent future impairments.

Along with providing support to these new initiatives, this report will target potential water quality and stormwater runoff challenges created by projects proposed in SCAG's 2004 Regional Transportation Plan. This environmental analysis furthers a Caltrans commitment to make environmental and pollution management strategies an integral part of the regional transportation planning process. This movement towards more integrated planning will bring many benefits. For example, regional policy makers and other members of the public will be able to make decisions that better respect environmental stewardship, support improved environmental sustainability and manage resources more cost-effectively.

Section 2: Regional Overview of Hydrology and Jurisdictions

SCAG is the metropolitan planning organization for much of Southern California, including the six counties (shown in Figure 1-1) and 187 cities (shown in Figure 1-2). The most recent population count gives a regional total of 17,439,156. A specific listing of cities within the SCAG counties can be found in Appendix C. Most of this population is densely concentrated in urban watersheds close to the Pacific Ocean.

The 35 watersheds in the SCAG area, also denominated Hydrologic Units (HU), are presented in Figures 1-10. The Hydrologic Unit Code (HUC) as used by the USGS and watershed name are presented in the legend; the HUCs are also provided by County in Appendix D and by City in Appendix A.

Figure 1-11 presents the Hydrologic Subunits (HSU) within the SCAG area, as determined by the National Hydrographic System. Since the number of HSU within SCAG is large, Figures 1-12 to 1-18 present the HSU ID numbers by county in the following sections of this report. The first digit of the HSU relates to the Regional Water Quality Control Board that has jurisdiction over the HSU. Appendix E provides a convenient reference between Cities and HSU. Note that many cities in the SCAG area occupy more than one HSU, since jurisdictional boundaries do not coincide with watershed or subwatershed boundaries. As a result, usually more than one city has an impact on a particular HSU. The correspondence between HSUs and SCAG counties is available in Appendix F.

Figure 1-19 presents the complexity of the river and tributary network for the watersheds in the SCAG area, according to the National Hydrographic Dataset. The following Regional Water Quality Control Boards (RWQCB) are the primary ones in the SCAG area: Los Angeles RWQCB (also known as Regional Board 4, or RB4), Colorado Basin RWQCB (RB7), and Santa Ana RWQCB (RB8). Since watershed boundaries do not coincide with counties, other regional boards also have jurisdiction over some of the subwatersheds in the SCAG area, namely: Central Coast RWQCB (RB3), Central Valley RWQCB (RB5), Lahontan RWQCB (RB6), and San Diego RWQCB (RB9).

The GIS data used in this report was compiled from a number of sources. The source of each file and other data characteristics (metadata) are presented in Appendix B.

Section 3: Ventura County Hydrology and Jurisdictions

Ventura County, with a population of 791,310, has 10 cities within its boundaries (see Appendix C for a listing of cities within the county). The location of these cities is shown in Figure 1-6. (The table in Appendix A shows the correspondence between City ID number, City Name and the watershed(s) in which the city is located.)

The hydrologic units for the County are shown in Figure 1-12, each identified by unique numbers. The County has three major watersheds: Santa Clara River, Calleguas Creek and Ventura River. These are within the jurisdiction of the Los Angeles Regional Water Quality Control Board (Los Angeles RWQCB), the state agency that regulates surface water quality through the issuance of stormwater and other discharge permits. Other small coastal watersheds are incidental management areas. Some of these are within the jurisdiction of the Central Coast RWQCB (HUs in the 300 range) and one is overseen by the Central Valley RWQCB (HU in the 500 range).

Section 4: Los Angeles County Hydrology and Jurisdictions

Los Angeles County, with a population of 9,979,618, has 88 cities within its boundaries (see Appendix C for a listing of cities within the county). The location of these cities is shown in Figures 1-3 and 1-4, northerly and southerly maps of the County. (The table in Appendix A shows the correspondence between City ID number, City Name and the watershed(s) in which the city is located.)

The hydrologic units (HUs) for the County are shown in Figures 1-13, 1-14, and 1-18, each identified by unique numbers. The County is comprised mainly of eight watersheds: Los Angeles River, San Gabriel River, Santa Monica Bay, Dominguez Channel, Los Cerritos Channel, Santa Clara River, Antelope and Mojave. These watersheds are within the jurisdiction of the Los Angeles and Lahontan RWQCBs, the state agencies that regulate surface water quality through the issuance of stormwater and other discharge permits. Other incidental sub-watersheds in the County are within the jurisdiction of RWQCBs 5, 6 and 8, as indicated in Appendix F.

Section 5: Orange County Hydrology and Jurisdictions

Orange County, with a population of 2,978,816, has 34 cities within its boundaries (see Appendix C for a listing of cities within the county). The location of these cities is shown in Figure 1-5. (The table in Appendix A shows the correspondence between City ID number, City Name and the watershed(s) in which the city is located.)

The HUs for the County are shown in Figure 1-15, each identified by unique numbers. The County is comprised of thirteen watersheds: Coyote Creek, Carbon Creek, Westminster, Talbert, Santa Ana River, San Diego Creek, Newport Bay, Newport Coast, Laguna Canyon, Aliso Creek, Salt Creek, San Juan Creek, and San Clemente. These watersheds are within the jurisdiction of the Santa Ana and San Diego Regional Water Quality Control Boards, the state agencies that regulate surface water quality through the issuance of stormwater and other discharge permits. Regional Board 4 also has jurisdiction over incidental portions of two subwatersheds in Orange County, as indicated in Appendix F.

Section 6: San Bernardino County Hydrology and Jurisdictions

San Bernardino County, with a population of 1,832,966, has 24 cities within its boundaries (see Appendix C for a listing of cities within the county). The location of these cities is shown in Figure 1-9. (The table in Appendix A shows the correspondence between City ID number, City Name and the watershed(s) in which the city is located.)

The HUs for the County are shown in Figures 1-15 and 1-16, each identified by unique numbers. The County is comprised of 15 watersheds: Antelope-Fremont Valleys, Coyote-Cuddeback Lakes, Death Valley-Lower Amargosa, Havasu-Mohave Lakes, Imperial Reservoir, Indian Wells-Searles Valleys, Ivanpah-Pahrump Valleys, Mojave, Panamint Valley, Piute Wash, Salton Sea, San Gabriel, Santa Ana, Southern Mojave, and Upper Amargosa,. These watersheds are mostly within the jurisdiction of the Santa Ana, Lahontan and the Colorado River Basin Regional Water Quality Control Boards, the state agencies that regulate surface water quality through the issuance of stormwater and other discharge permits. Regional Board 4 also has jurisdiction over incidental portions of several subwatersheds in San Bernardino County, as indicated in Appendix F.

Section 7: Riverside County Hydrology and Jurisdictions

Riverside County, with a population of 1,705,537, has 24 cities within its boundaries (see Appendix C for a listing of cities within the county). The location of these cities is shown in Figures 1-7 and 1-8. (The table in Appendix A shows the correspondence between City ID number, City Name and the watershed(s) in which the city is located.)

The HUs for the County are shown in Figures 1-15, 1-16 and 1-17, each identified by unique numbers. The County is comprised of 8 watersheds: Aliso-San Onofre, Imperial Reservoir, Salton Sea, San Jacinto, San Luis Rey-Escondido, Santa Ana, Santa Margarita, and Southern Mojave. These watersheds are within the jurisdiction of the Santa Ana, Lahontan and the Colorado River Basin RWQCBs, the state agencies that regulate surface water quality through the issuance of stormwater and other discharge permits.

Section 8: Imperial County Hydrology and Jurisdictions

Imperial County, with a population of 150,909, has 7 cities within its boundaries (see Appendix C for a listing of cities within the county). The location of these cities is shown in Figure 1-8. (The table in Appendix A shows the correspondence between City ID number, City Name and the watershed(s) in which the city is located.)

The HUs for the County are shown in Figure 1-17, each identified by unique numbers. The County is comprised of 4 watersheds: Imperial Reservoir, Lower Colorado, Salton Sea, and Southern Mojave. These watersheds are within the jurisdiction of the Colorado River Basin RWQCB, the state agency that regulates surface water quality through the issuance of stormwater and other discharge permits.

Section 9: Report Summary

This Report presents the initial layers of information that serve as a foundation for future reports and analysis. The focus of this report is the identification of local jurisdictions within their watershed settings. This connection has taken on new importance because of the growing burdens created by increasingly stringent water quality regulation within California watersheds, including local stormwater discharge requirements.

At the present time these regulations are written so that noncompliance allows state regulators to take enforcement actions against any single local jurisdiction. As a result of these burdens and with greater awareness of shared hydrologies, local governments have been prompted to explore the potentials for comprehensive control measure planning and implementation. This comprehensive approach would instead look for opportunities within a watershed where multiple jurisdictions might jointly implement solutions that bring environmental benefit, greater cost-effectiveness and fewer wasteful redundancies.

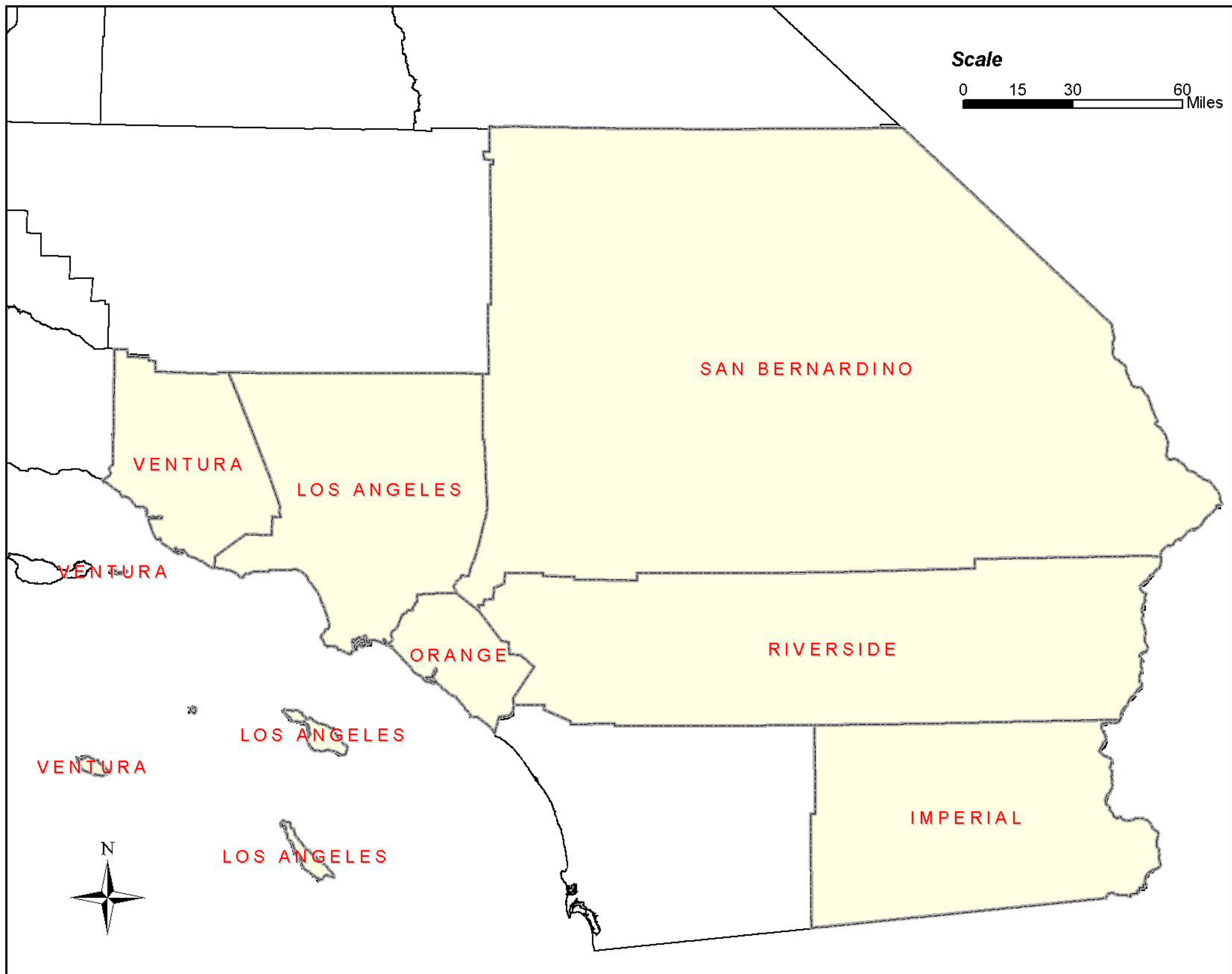
Though comprehensive planning involves consideration of all land uses and jurisdictions, the next three reports will discuss the interplay between proposed regionally-significant transportation projects (the 2004 Regional Transportation Plan) with the following concerns: the listed water impairments in the SCAG region, the potential for polluted stormwater runoff, and the risks of flooding and debris flows.

The fourth report will draw on the work of the earlier reports as it locates watershed areas where local jurisdictions may find enough mutual advantage to consider planning and implementing comprehensive water quality initiatives. Included in this review will be a survey of Caltrans facilities that identifies areas where Caltrans could consider participating in a local stormwater quality initiative. Such participation would be worthwhile when an initiative assures permit compliance and brings cost savings.

Section 10: Acknowledgements

This report has had the technical guidance and support of Arturo A. Keller, Associate Professor at the Bren School of Environmental Science & Management at the University of California at Santa Barbara, along with Yi Zheng, a PhD student in Professor Keller's Research Group.

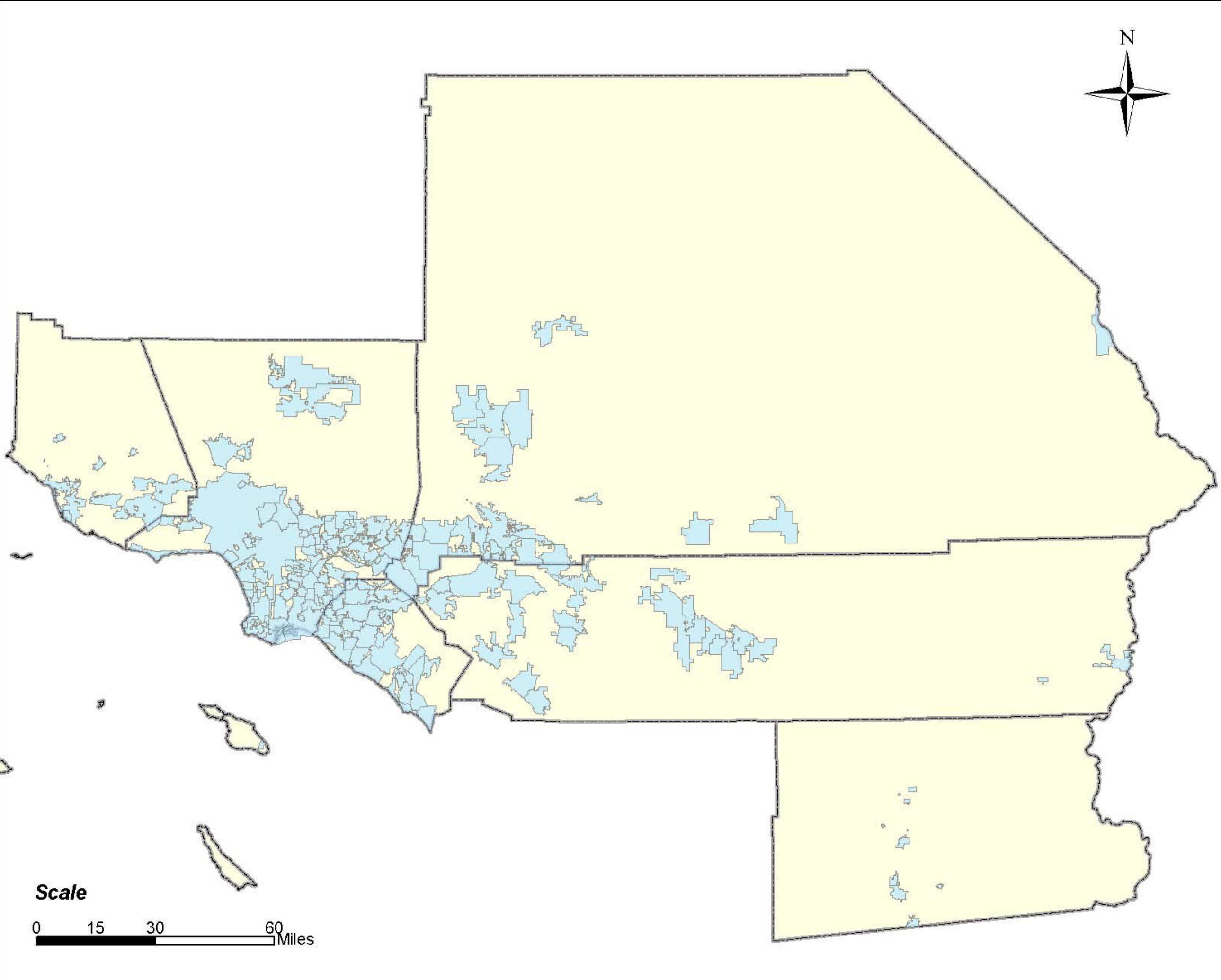
Daniel E. Griset, Senior Regional Planner and a member of SCAG's Environmental Section, is otherwise responsible for the preparation of this report.



Legend

 SCAG Counties

Figure 1-1



Legend

-  Cities
-  SCAG Counties

Scale

0 15 30 60 Miles



Figure 1-2

Scale

0 4 8 16 Miles



Legend

-  Cities
-  SCAG Counties

Note

The city names can be looked up from Appendix A by City ID.

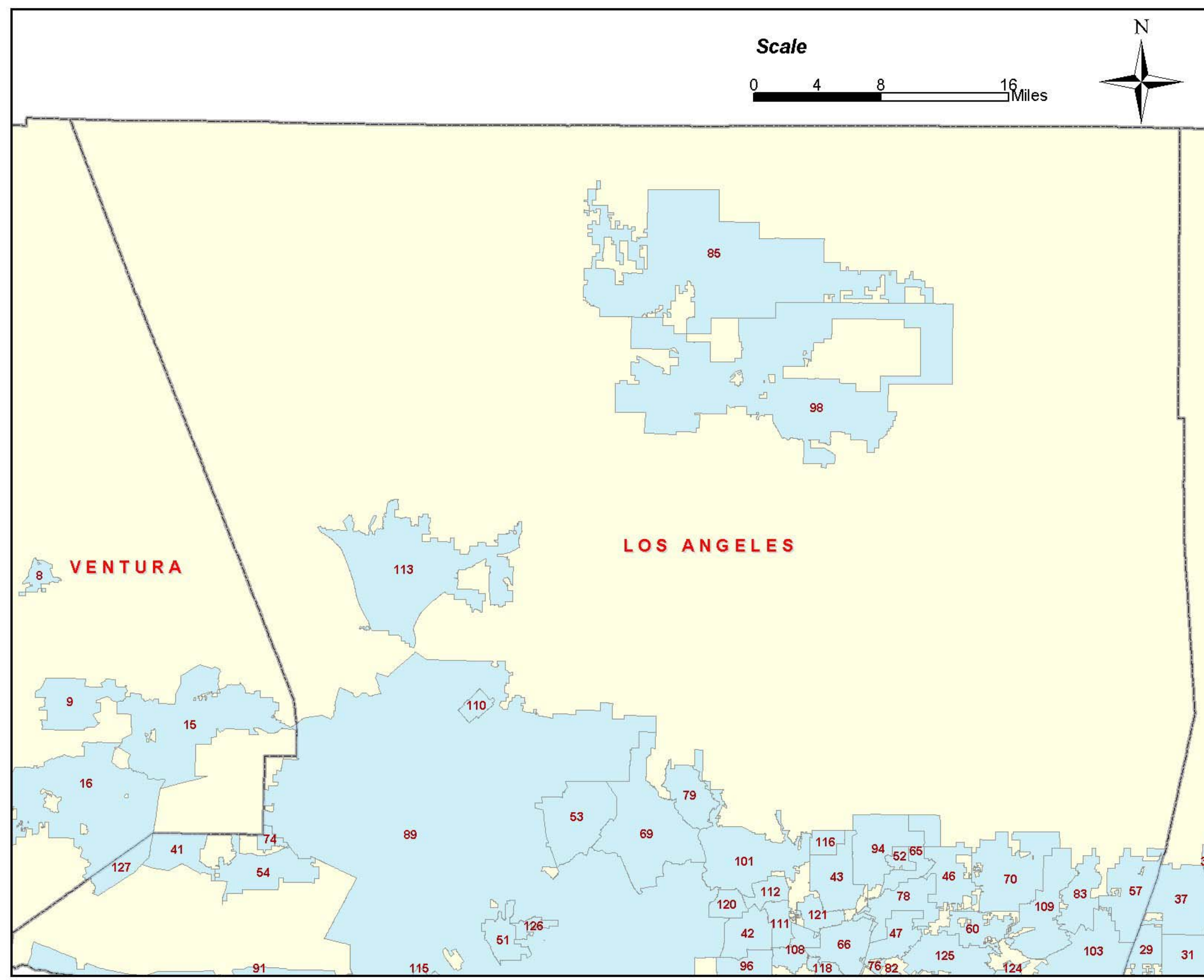
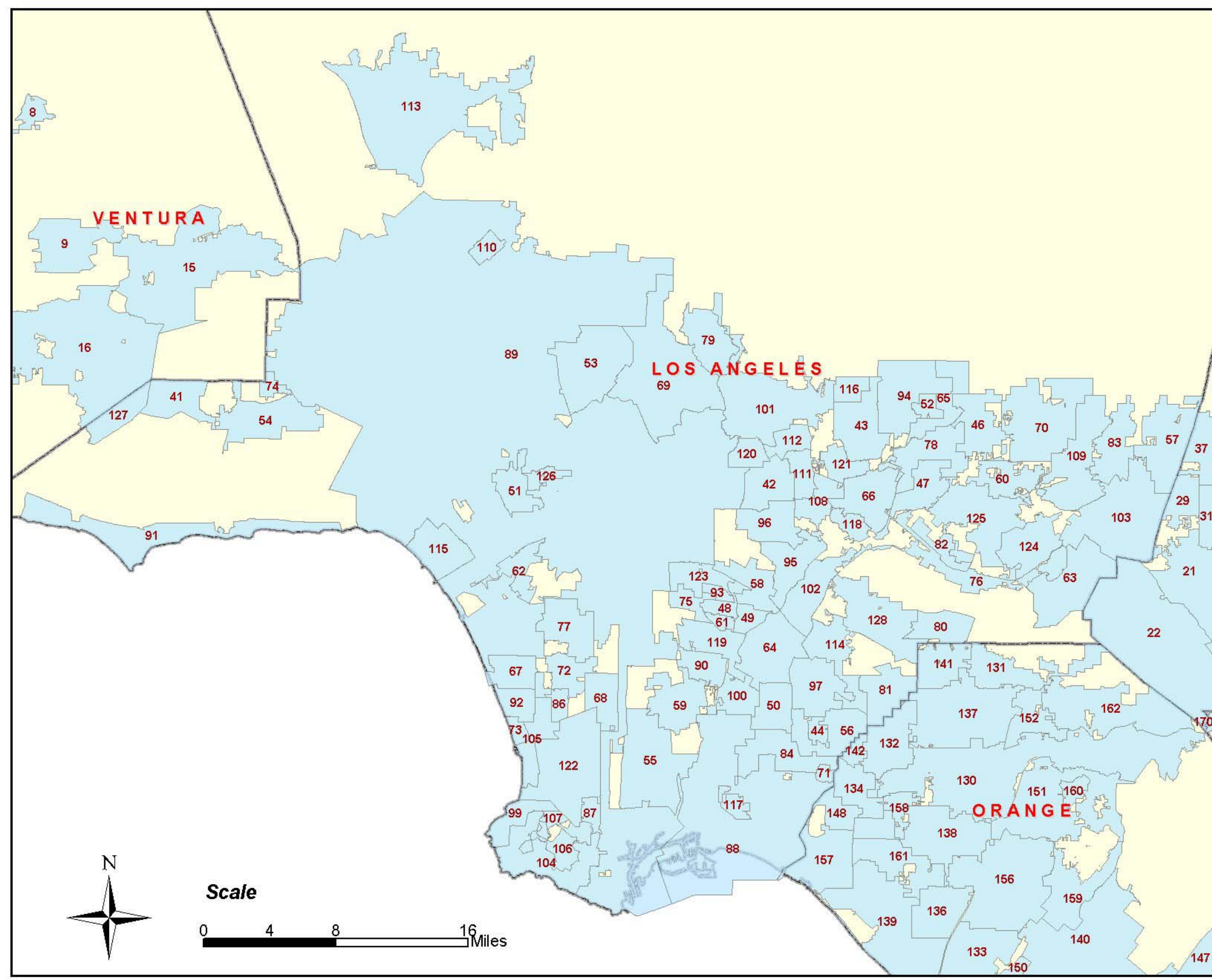


Figure 1-3



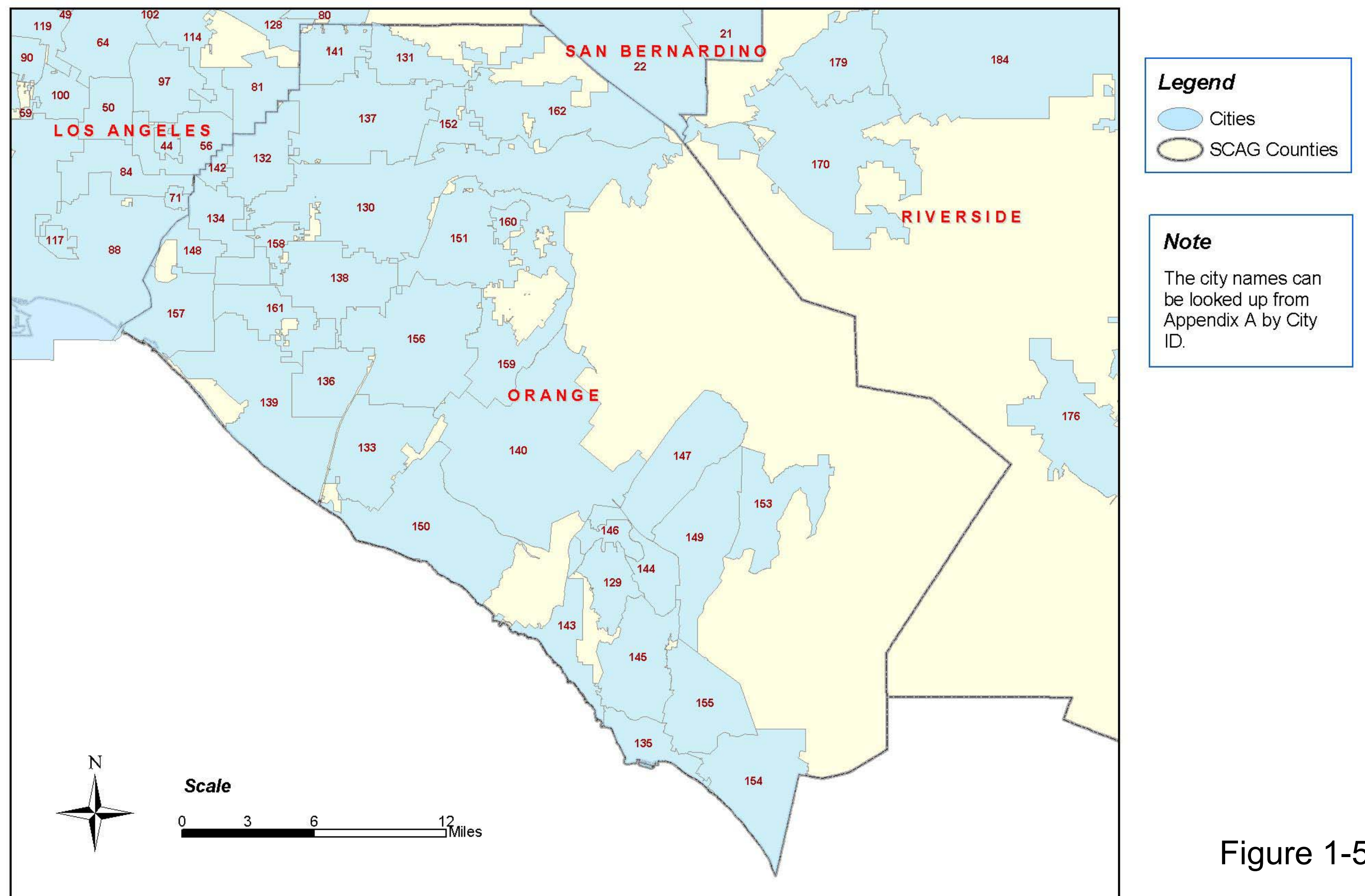
Legend

-  Cities
-  SCAG Counties

Note

The city names can be looked up from Appendix A by City ID.

Figure 1-4



Legend

-  Cities
-  SCAG Counties

Note

The city names can be looked up from Appendix A by City ID.

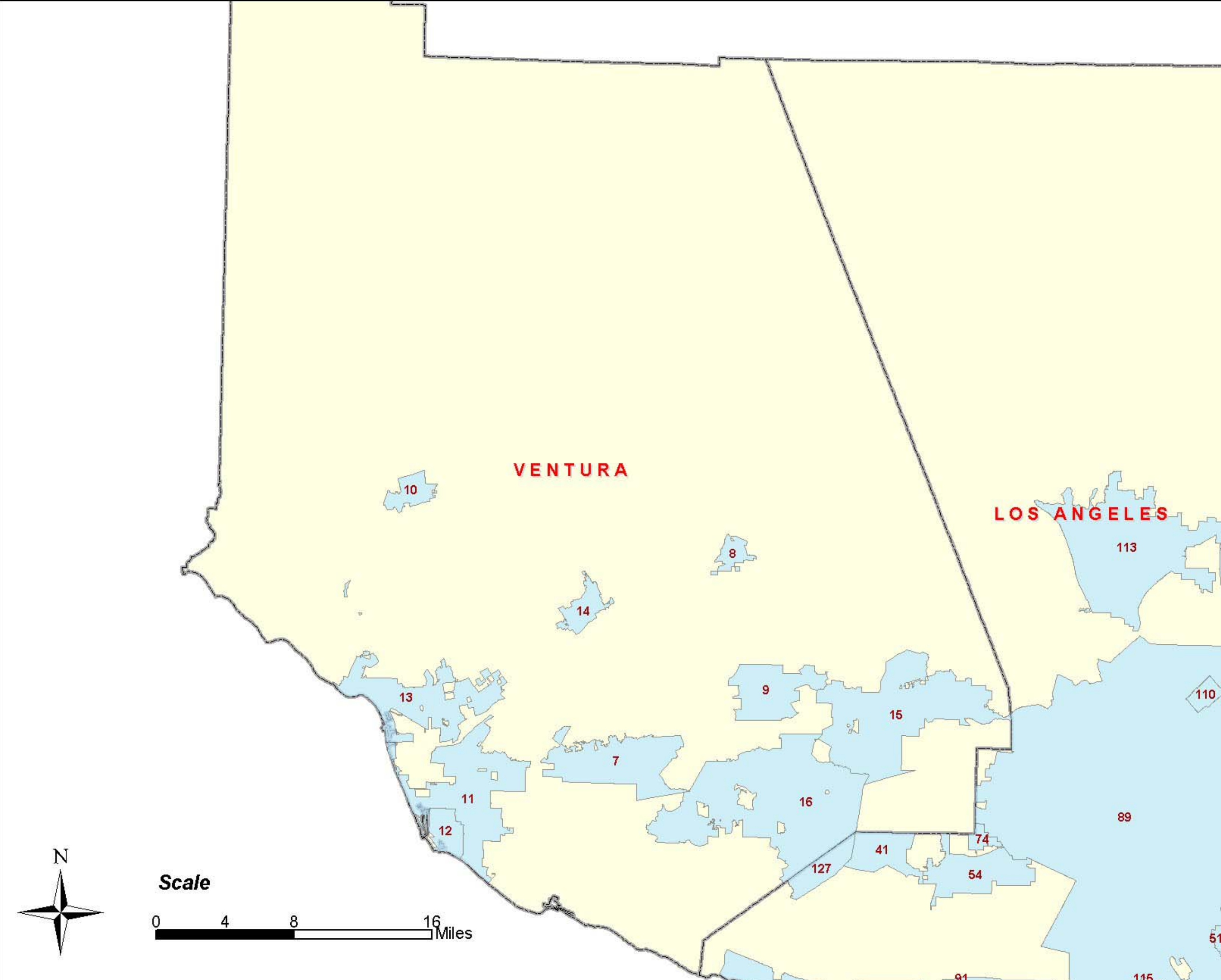
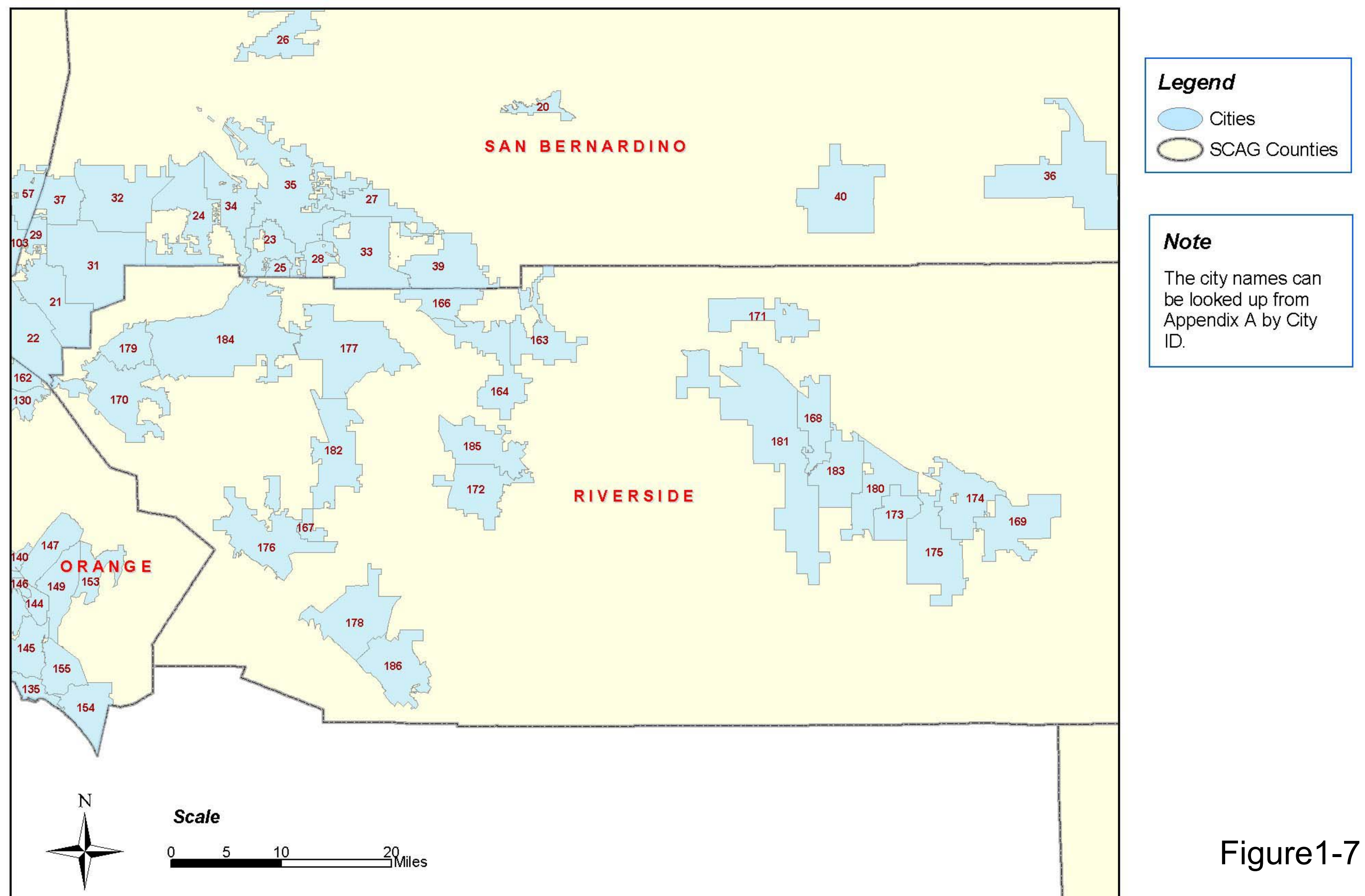
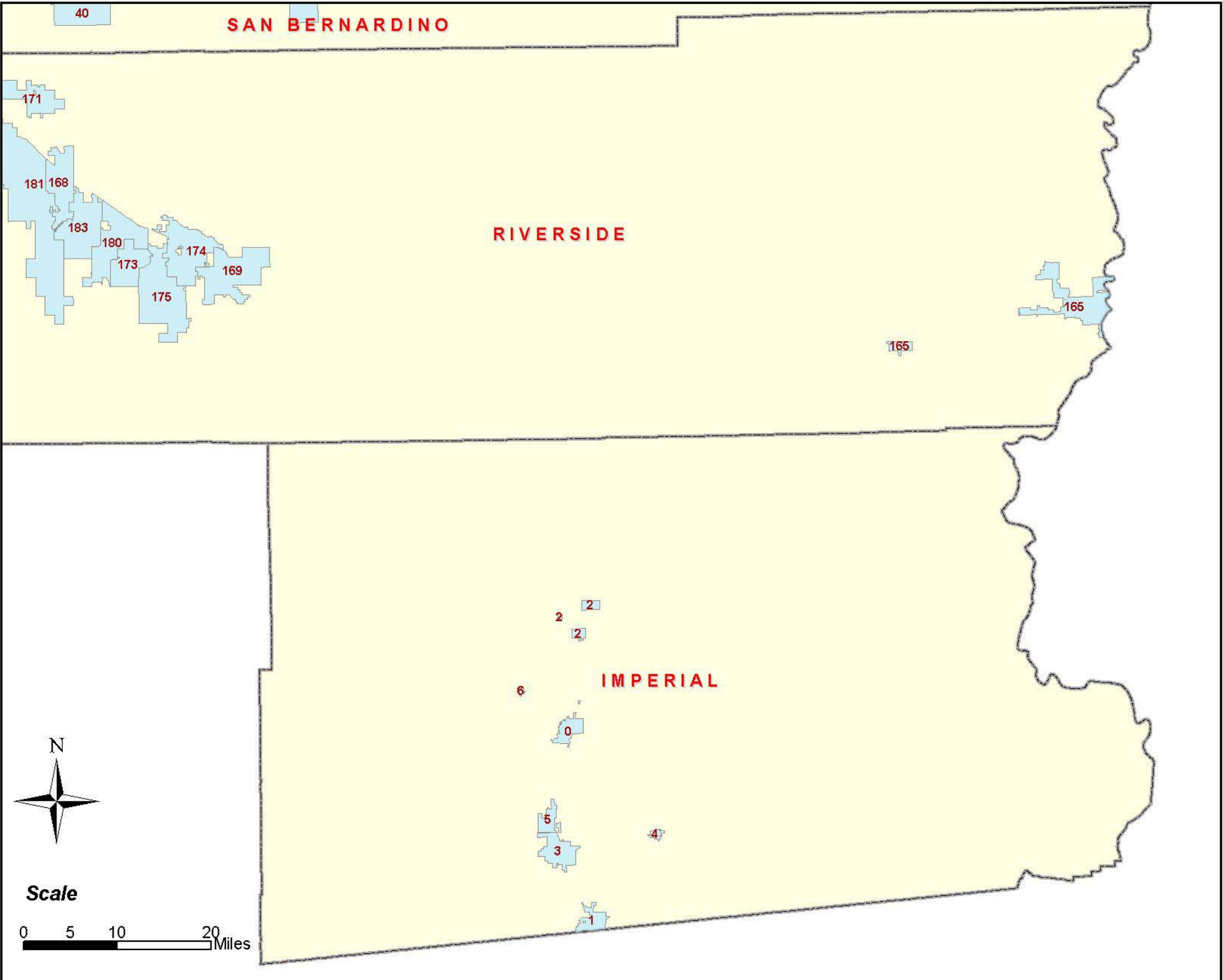


Figure 1-6





Legend

-  Cities
-  SCAG Counties

Note

The city names can be looked up from Appendix A by City ID.

Figure 1-8

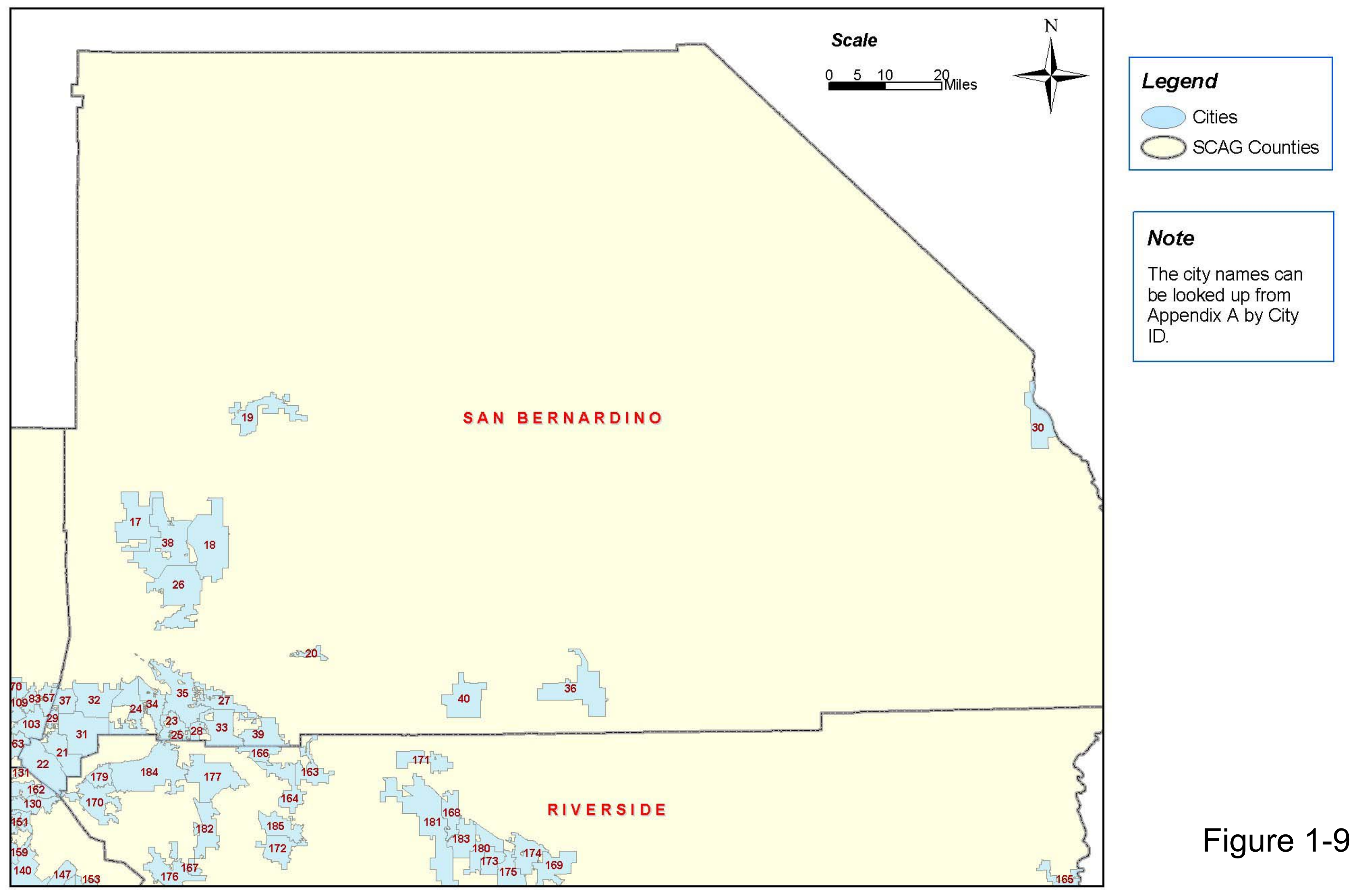
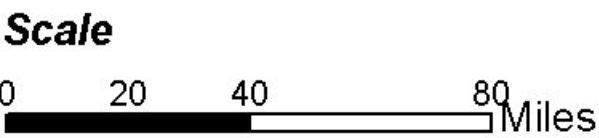
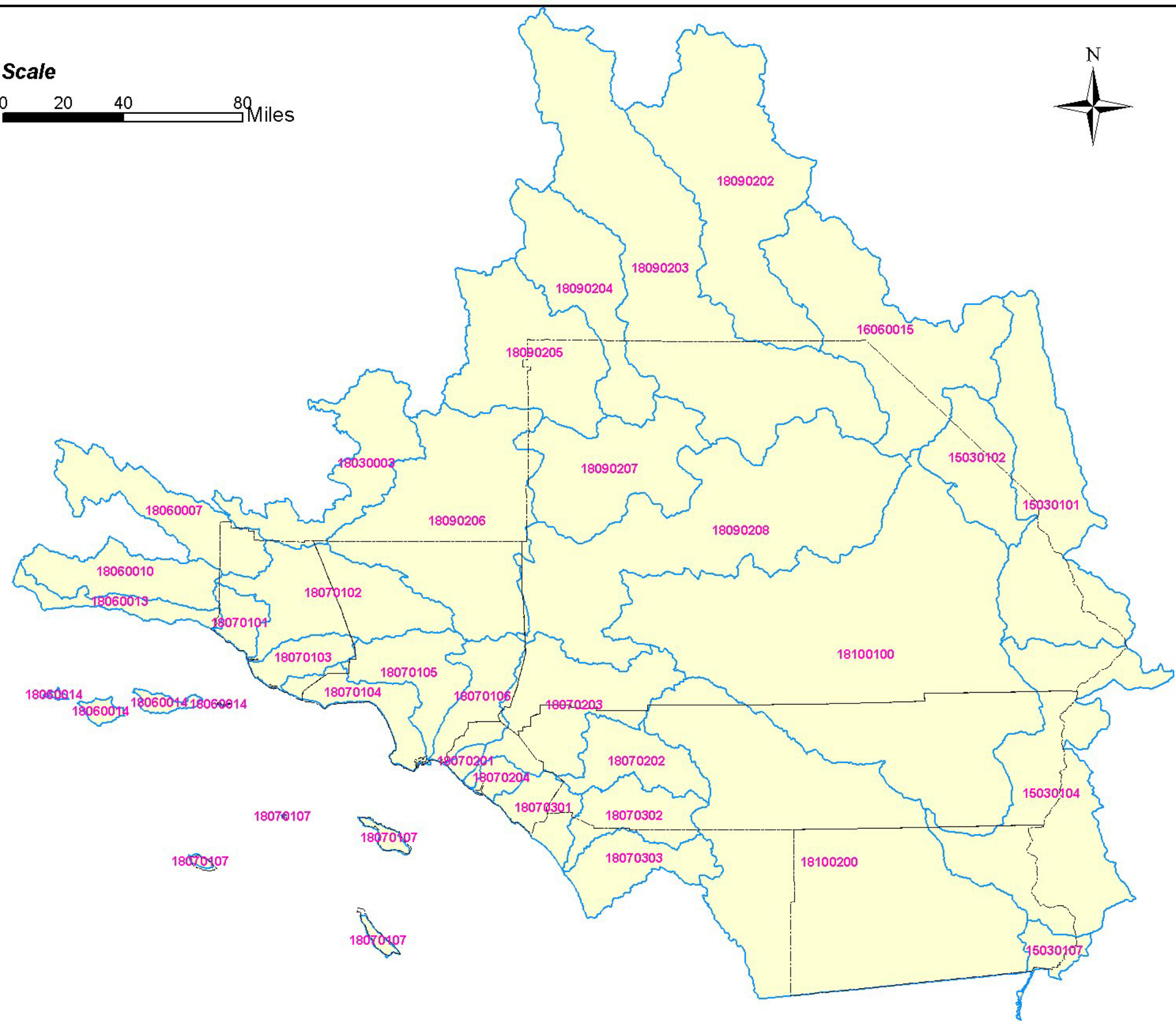


Figure 1-9



Legend

- Hydrologic Units
- SCAG Counties



| Hydrologic Units | Codes |
|---------------------------------------|----------|
| Havasu-Mohave Lakes | 15030101 |
| Piute Wash | 15030102 |
| Imperial Reservoir | 15030104 |
| Lower Colorado | 15030107 |
| Ivanpah-Pahrump Valleys | 16060015 |
| Middle Kern-Upper Tehachapi-Grapevine | 18030003 |
| Cuyama | 18060007 |
| Santa Ynez | 18060010 |
| Santa Barbara Coastal | 18060013 |
| Santa Barbara Channel Islands | 18060014 |
| Ventura | 18070101 |
| Santa Clara | 18070102 |
| Calleguas | 18070103 |
| Santa Monica Bay | 18070104 |
| Los Angeles | 18070105 |
| San Gabriel | 18070106 |
| San Pedro Channel Islands | 18070107 |
| Seal Beach | 18070201 |
| San Jacinto | 18070202 |
| Santa Ana | 18070203 |
| Newport Bay | 18070204 |
| Aliso-San Onofre | 18070301 |
| Santa Margarita | 18070302 |
| San Luis Rey-Escondido | 18070303 |
| Upper Amargosa | 18090202 |
| Death Valley-Lower Amargosa | 18090203 |
| Panamint Valley | 18090204 |
| Indian Wells-Searles Valleys | 18090205 |
| Antelope-Fremont Valleys | 18090206 |
| Coyote-Cuddeback Lakes | 18090207 |
| Mojave | 18090208 |
| Southern Mojave | 18100100 |
| Salton Sea | 18100200 |

Figure 1-10



Legend

- Hydrologic Sub-units
- SCAG Counties

Figure 1-11

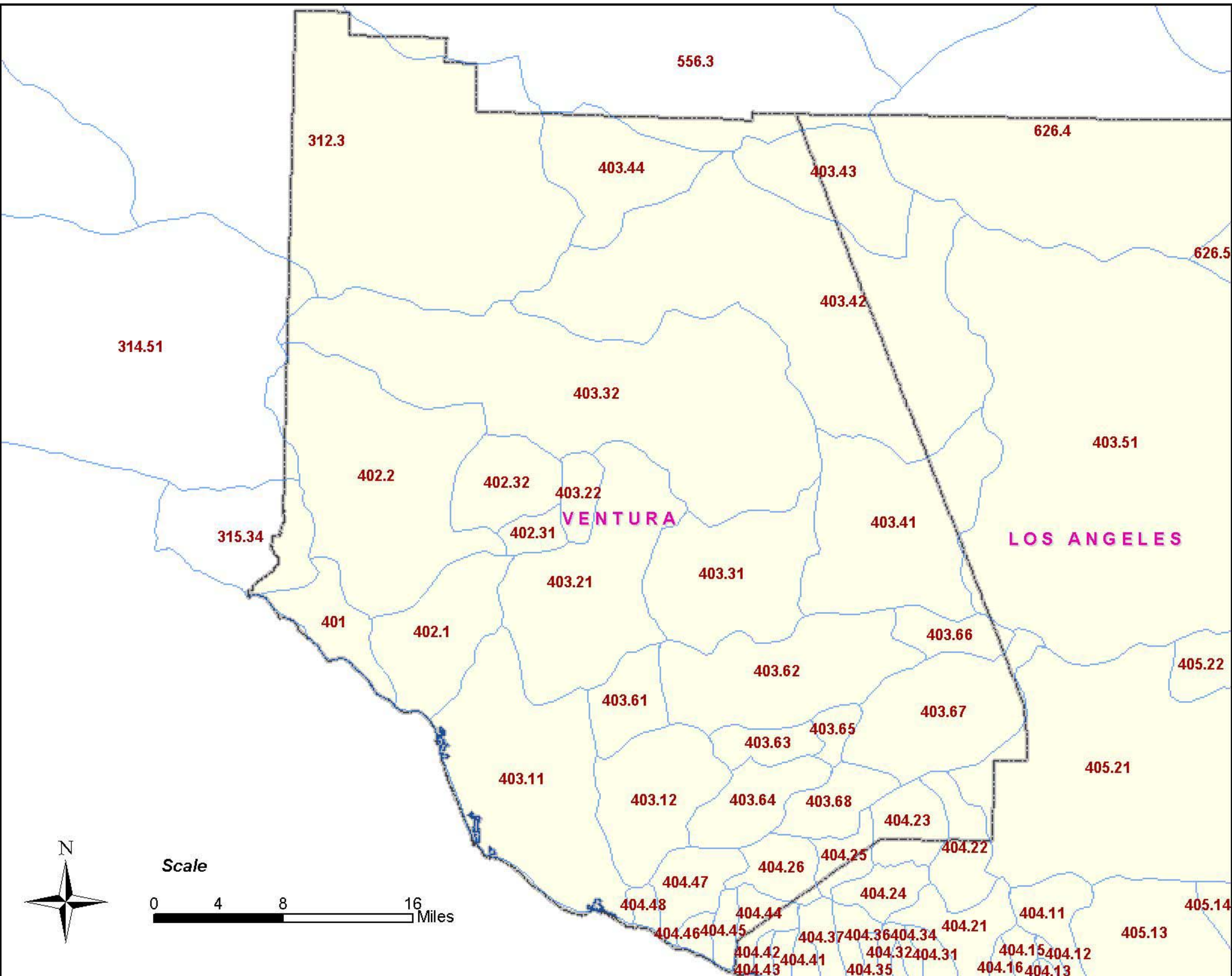


Figure 1-12

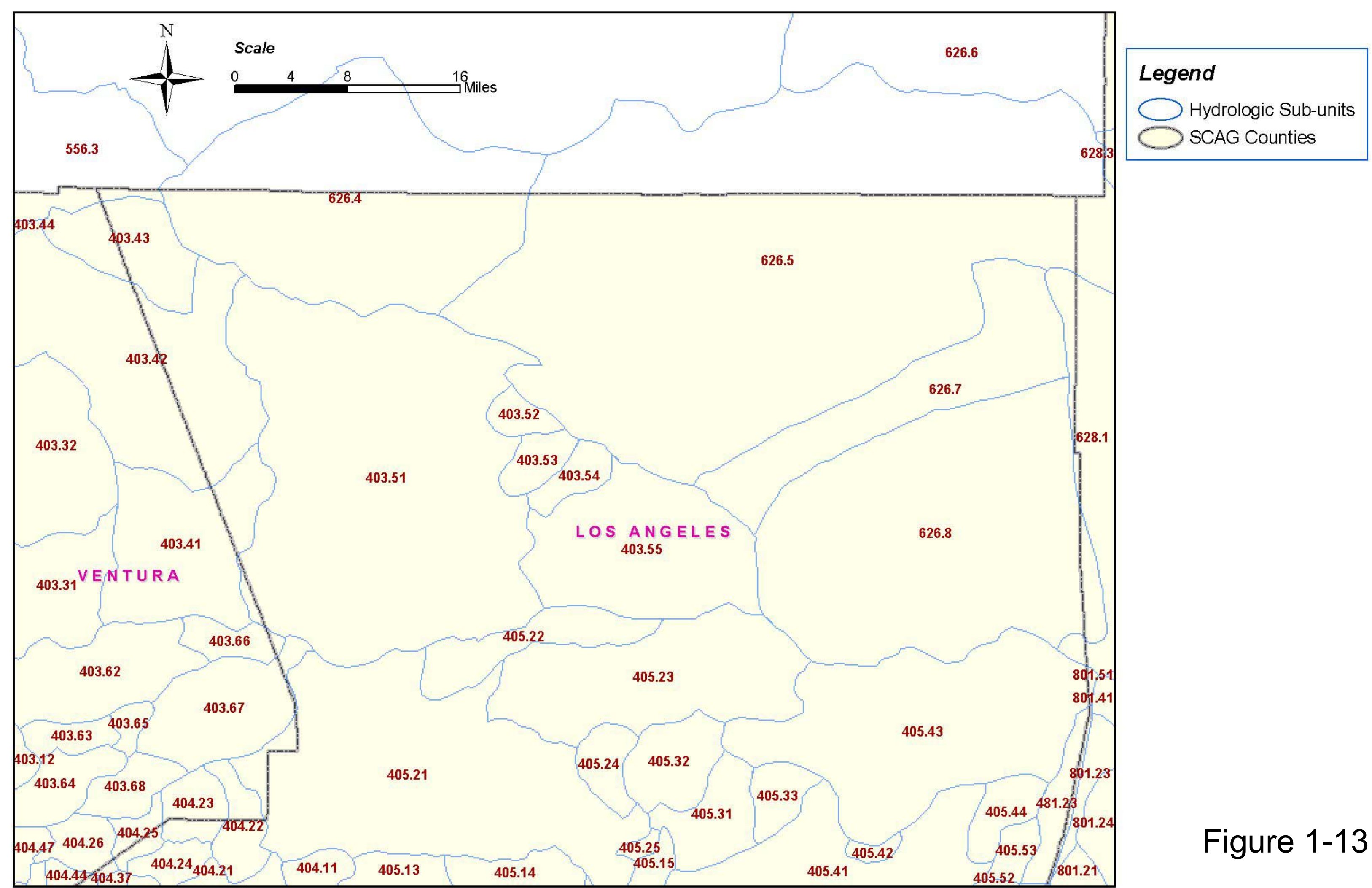
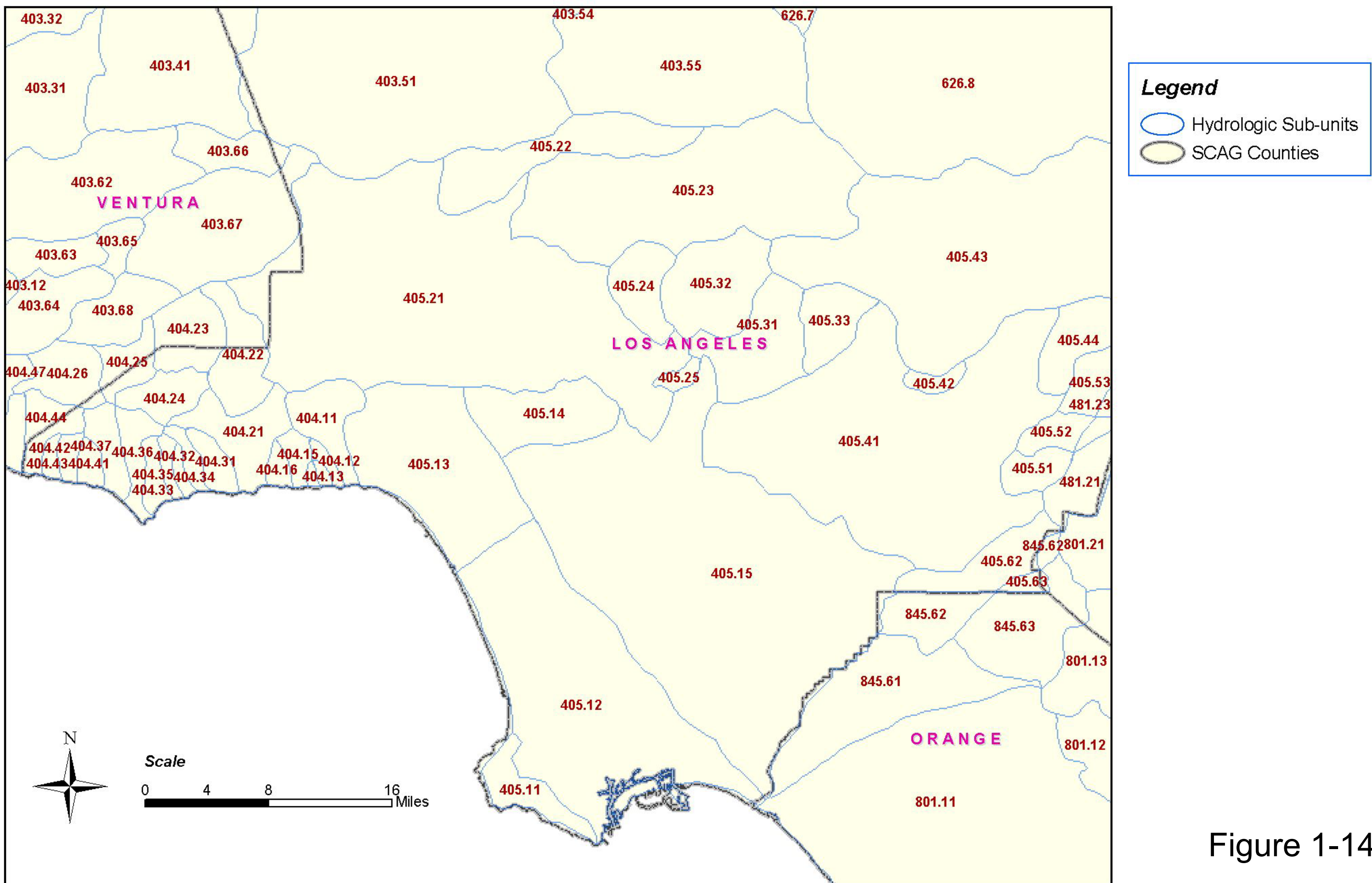


Figure 1-13



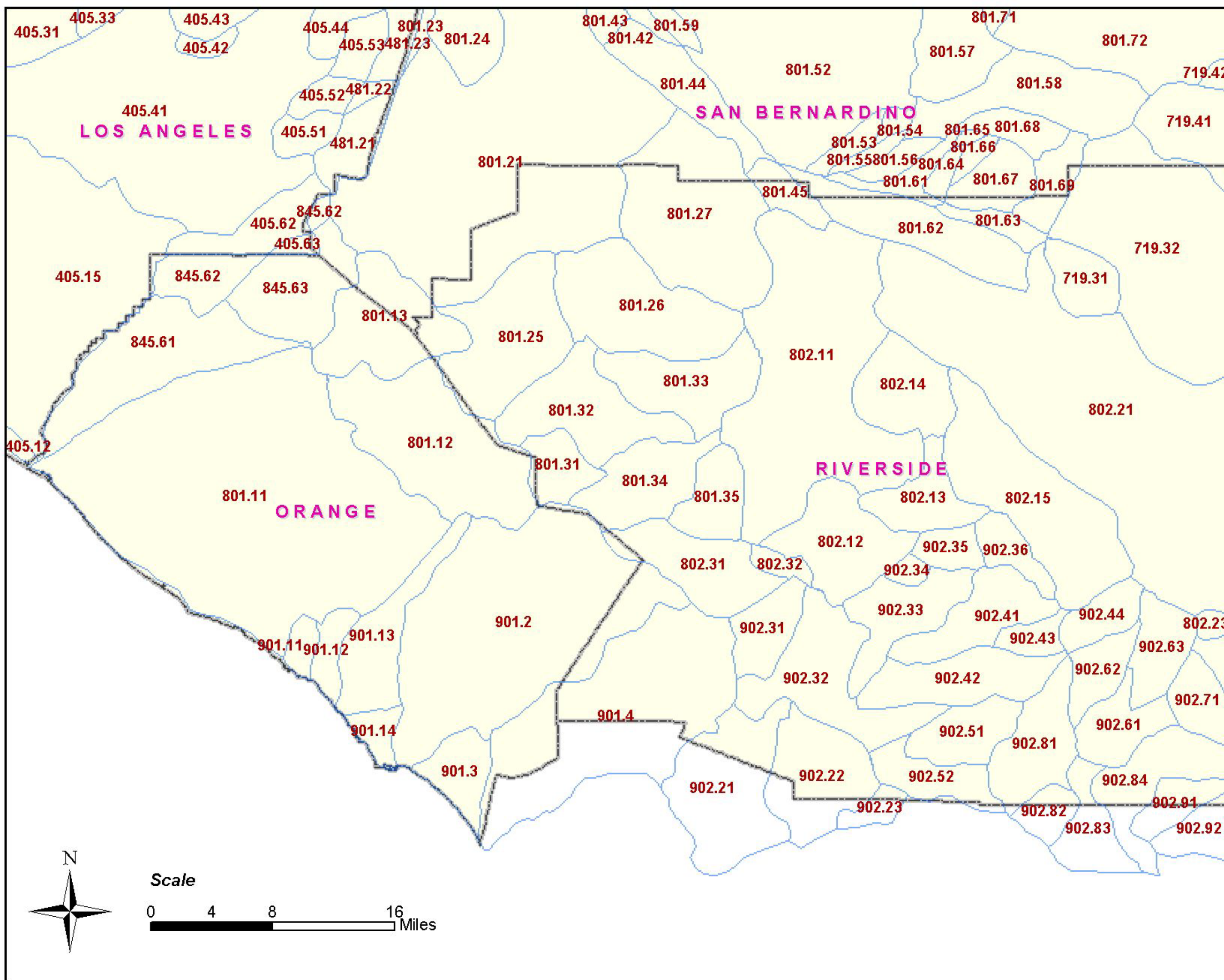
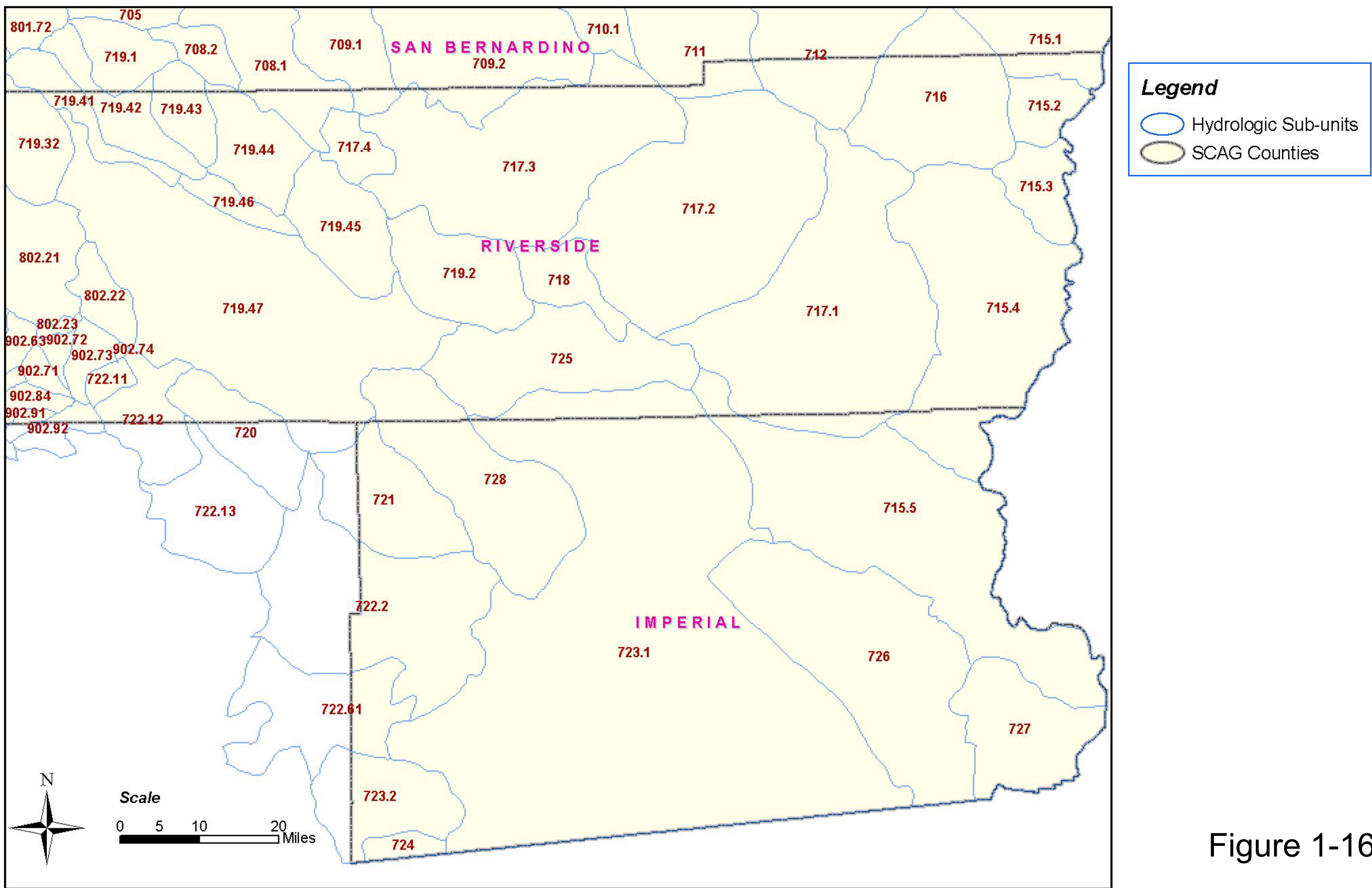
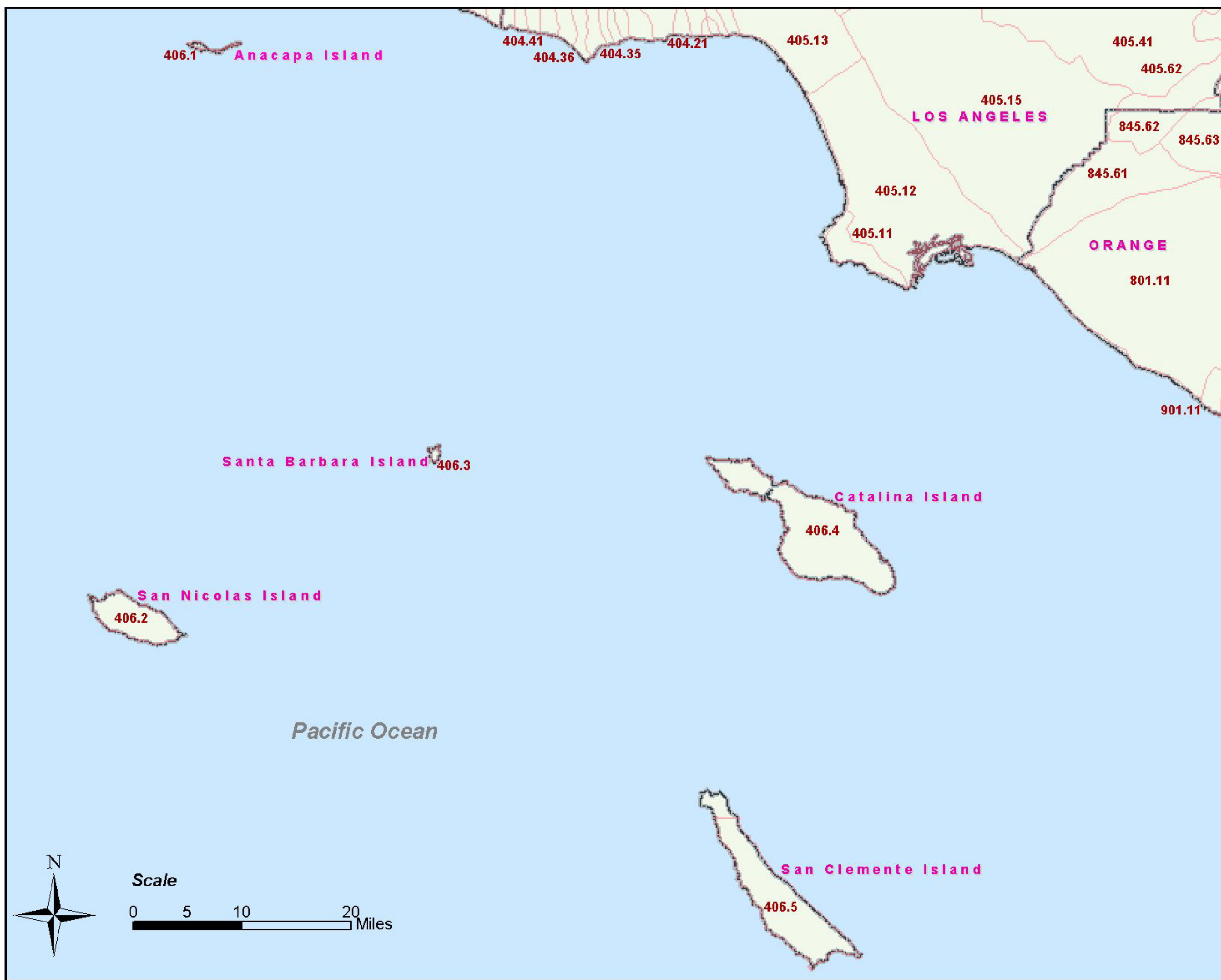


Figure 1-15





Legend

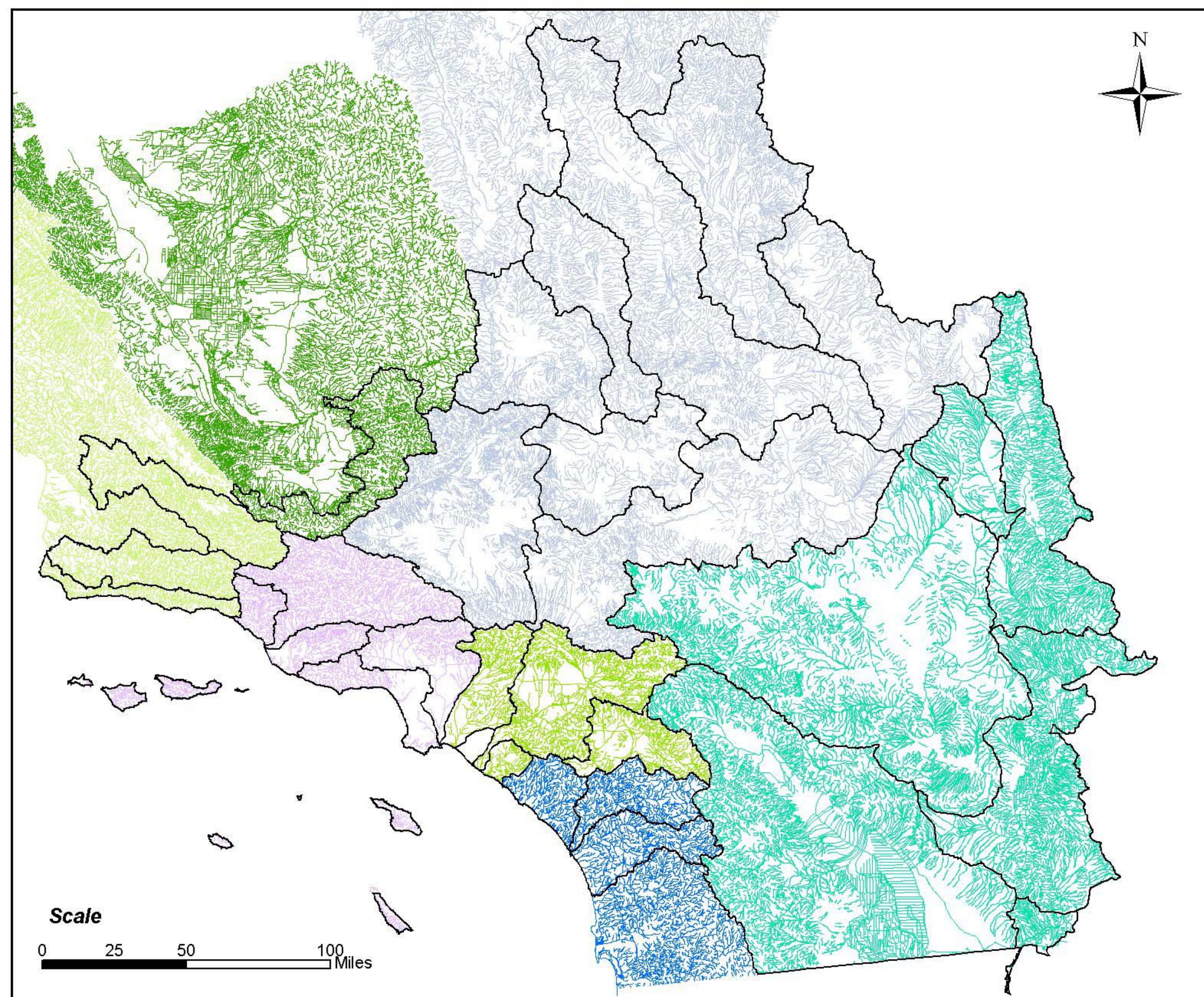
- Hydrologic Sub-units
- SCAG Counties

Scale

0 5 10 20 Miles

N

Figure 1-18



Legend

- CA SWRCB Region 3 HPBA()
- CA SWRCB Region 4 HPBA()
- CA SWRCB Region 5 HPBA(tl)
- CA SWRCB Region 6 HPBA(sl)
- CA SWRCB Region 7 HPBA()
- CA SWRCB Region 8 HPBA()
- CA SWRCB Region 9 HPBA()
- Hydrologic Units

Figure 1-19

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Appendix A: Cities within the SCAG Region and Corresponding Watersheds by Hydrologic Unit Code (HUC)

| City ID | City Name | Watersheds | HUC |
|---------|------------------|---------------------|----------|
| 0 | Brawley | Salton Sea | 18100200 |
| 1 | Calexico | Salton Sea | 18100200 |
| 2 | Calipatria | Salton Sea | 18100200 |
| 3 | El Centro | Salton Sea | 18100200 |
| 4 | Holtville | Salton Sea | 18100200 |
| 5 | Imperial | Salton Sea | 18100200 |
| 6 | Westmorland | Salton Sea | 18100200 |
| 7 | Camarillo | Calleguas | 18070103 |
| 8 | Fillmore | Santa Clara | 18070102 |
| 9 | Moorpark | Calleguas | 18070103 |
| 10 | Ojai | Ventura | 18070101 |
| 11 | Oxnard | Santa Clara | 18070102 |
| | | Calleguas | 18070103 |
| 12 | Port Hueneme | Calleguas | 18070103 |
| 13 | San Buenaventura | Ventura | 18070101 |
| | | Santa Clara | 18070102 |
| 14 | Santa Paula | Santa Clara | 18070102 |
| 15 | Simi Valley | Calleguas | 18070103 |
| | | Los Angeles | 18070105 |
| 16 | Thousand Oaks | Calleguas | 18070103 |
| | | Santa Monica Bay | 18070104 |
| 17 | Adelanto | Mojave | 18090208 |
| 18 | Apple Valley | Mojave | 18090208 |
| 19 | Barstow | Mojave | 18090208 |
| 20 | Big Bear Lake | Santa Ana | 18070203 |
| 21 | Chino | Santa Ana | 18070203 |
| 22 | Chino Hills | San Gabriel | 18070106 |
| | | Santa Ana | 18070203 |
| 23 | Colton | Santa Ana | 18070203 |
| 24 | Fontana | Santa Ana | 18070203 |
| 25 | Grand Terrace | Santa Ana | 18070203 |
| 26 | Hesperia | Mojave | 18090208 |
| 27 | Highland | Santa Ana | 18070203 |
| 28 | Loma Linda | Santa Ana | 18070203 |
| 29 | Montclair | Santa Ana | 18070203 |
| 30 | Needles | Havasu-Mohave Lakes | 15030101 |
| | | Piute Wash | 15030102 |
| 31 | Ontario | Santa Ana | 18070203 |
| 32 | Rancho Cucamonga | Santa Ana | 18070203 |
| 33 | Redlands | Santa Ana | 18070203 |
| 34 | Rialto | Santa Ana | 18070203 |

| City ID | City Name | Watersheds | HUC |
|---------|------------------|---------------------------|----------|
| 35 | San Bernardino | Santa Ana | 18070203 |
| 36 | Twentynine Palms | Southern Mojave | 18100100 |
| 37 | Upland | Santa Ana | 18070203 |
| 38 | Victorville | Mojave | 18090208 |
| 39 | Yucaipa | Santa Ana | 18070203 |
| 40 | Yucca Valley | Southern Mojave | 18100100 |
| | | Salton Sea | 18100200 |
| 41 | Agoura Hills | Santa Monica Bay | 18070104 |
| 42 | Alhambra | Los Angeles | 18070105 |
| 43 | Arcadia | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 44 | Artesia | San Gabriel | 18070106 |
| 45 | Avalon | San Pedro Channel Islands | 18070107 |
| 46 | Azusa | San Gabriel | 18070106 |
| 47 | Baldwin Park | San Gabriel | 18070106 |
| 48 | Bell | Los Angeles | 18070105 |
| 49 | Bell Gardens | Los Angeles | 18070105 |
| 50 | Bellflower | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 51 | Beverly Hills | Santa Monica Bay | 18070104 |
| 52 | Bradbury | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 53 | Burbank | Los Angeles | 18070105 |
| 54 | Calabasas | Santa Monica Bay | 18070104 |
| 54 | Calabasas | Los Angeles | 18070105 |
| 55 | Carson | Santa Monica Bay | 18070104 |
| | | Los Angeles | 18070105 |
| 56 | Cerritos | San Gabriel | 18070106 |
| 57 | Claremont | San Gabriel | 18070106 |
| | | Santa Ana | 18070203 |
| 58 | Commerce | Los Angeles | 18070105 |
| 59 | Compton | Santa Monica Bay | 18070104 |
| | | Los Angeles | 18070105 |
| 60 | Covina | San Gabriel | 18070106 |
| 61 | Cudahy | Los Angeles | 18070105 |
| 62 | Culver City | Santa Monica Bay | 18070104 |
| 63 | Diamond Bar | San Gabriel | 18070106 |
| | | Santa Ana | 18070203 |
| 64 | Downey | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 65 | Duarte | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 66 | El Monte | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 67 | El Segundo | Santa Monica Bay | 18070104 |
| 68 | Gardena | Santa Monica Bay | 18070104 |

| City ID | City Name | Watersheds | HUC |
|---------|-------------------|--------------------------|----------|
| 69 | Glendale | Los Angeles | 18070105 |
| 70 | Glendora | San Gabriel | 18070106 |
| 71 | Hawaiian Gardens | San Gabriel | 18070106 |
| 72 | Hawthorne | Santa Monica Bay | 18070104 |
| 73 | Hermosa Beach | Santa Monica Bay | 18070104 |
| 74 | Hidden Hills | Santa Monica Bay | 18070104 |
| | | Los Angeles | 18070105 |
| 75 | Huntington Park | Los Angeles | 18070105 |
| 76 | Industry | San Gabriel | 18070106 |
| 77 | Inglewood | Santa Monica Bay | 18070104 |
| 78 | Irwindale | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 79 | La Canada-Flntrdg | Los Angeles | 18070105 |
| 80 | La Habra Heights | San Gabriel | 18070106 |
| 81 | La Mirada | San Gabriel | 18070106 |
| 82 | La Puente | San Gabriel | 18070106 |
| 83 | La Verne | San Gabriel | 18070106 |
| 84 | Lakewood | San Gabriel | 18070106 |
| 85 | Lancaster | Antelope-Fremont Valleys | 18090206 |
| 86 | Lawndale | Santa Monica Bay | 18070104 |
| 87 | Lomita | Santa Monica Bay | 18070104 |
| 88 | Long Beach | Santa Monica Bay | 18070104 |
| | | San Gabriel | 18070106 |
| 89 | Los Angeles | Calleguas | 18070103 |
| | | Los Angeles | 18070105 |
| 90 | Lynwood | Los Angeles | 18070105 |
| 91 | Malibu | Santa Monica Bay | 18070104 |
| 92 | Manhattan Beach | Santa Monica Bay | 18070104 |
| 93 | Maywood | Los Angeles | 18070105 |
| 94 | Monrovia | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 95 | Montebello | Los Angeles | 18070105 |
| 96 | Monterey Park | Los Angeles | 18070105 |
| 97 | Norwalk | San Gabriel | 18070106 |
| 98 | Palmdale | Santa Clara | 18070102 |
| | | Antelope-Fremont Valleys | 18090206 |
| 99 | Palos Verdes Est | Santa Monica Bay | 18070104 |
| 100 | Paramount | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 101 | Pasadena | Los Angeles | 18070105 |
| 102 | Pico Rivera | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 103 | Pomona | San Gabriel | 18070106 |
| | | Santa Ana | 18070203 |
| 104 | Rancho Palos Vrds | Santa Monica Bay | 18070104 |
| 105 | Redondo Beach | Santa Monica Bay | 18070104 |

| City ID | City Name | Watersheds | HUC |
|---------|-------------------|------------------|----------|
| 106 | Rolling Hills | Santa Monica Bay | 18070104 |
| 107 | Rolling Hills Est | Santa Monica Bay | 18070104 |
| 108 | Rosemead | Los Angeles | 18070105 |
| 109 | San Dimas | San Gabriel | 18070106 |
| 110 | San Fernando | Los Angeles | 18070105 |
| 111 | San Gabriel | Los Angeles | 18070105 |
| 112 | San Marino | Los Angeles | 18070105 |
| 113 | Santa Clarita | Santa Clara | 18070102 |
| | | Los Angeles | 18070105 |
| 114 | Santa Fe Springs | San Gabriel | 18070106 |
| 115 | Santa Monica | Santa Monica Bay | 18070104 |
| 116 | Sierra Madre | Los Angeles | 18070105 |
| 117 | Signal Hill | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 118 | South El Monte | Los Angeles | 18070105 |
| | | San Gabriel | 18070106 |
| 119 | South Gate | Los Angeles | 18070105 |
| 120 | South Pasadena | Los Angeles | 18070105 |
| 121 | Temple City | Los Angeles | 18070105 |
| 122 | Torrance | Santa Monica Bay | 18070104 |
| 123 | Vernon | Los Angeles | 18070105 |
| 124 | Walnut | San Gabriel | 18070106 |
| 125 | West Covina | San Gabriel | 18070106 |
| 126 | West Hollywood | Santa Monica Bay | 18070104 |
| 127 | Westlake Village | Santa Monica Bay | 18070104 |
| 128 | Whittier | San Gabriel | 18070106 |
| 129 | Aliso Viejo | Newport Bay | 18070204 |
| | | Aliso-San Onofre | 18070301 |
| 130 | Anaheim | San Gabriel | 18070106 |
| | | Seal Beach | 18070201 |
| | | Santa Ana | 18070203 |
| 131 | Brea | San Gabriel | 18070106 |
| 132 | Buena Park | San Gabriel | 18070106 |
| | | Seal Beach | 18070201 |
| 133 | Costa Mesa | Santa Ana | 18070203 |
| | | Newport Bay | 18070204 |
| 134 | Cypress | San Gabriel | 18070106 |
| | | Seal Beach | 18070201 |
| 135 | Dana Point | Aliso-San Onofre | 18070301 |
| 136 | Fountain Valley | Seal Beach | 18070201 |
| | | Santa Ana | 18070203 |
| 137 | Fullerton | San Gabriel | 18070106 |
| 138 | Garden Grove | San Gabriel | 18070106 |
| | | Seal Beach | 18070201 |
| | | Santa Ana | 18070203 |
| 139 | Huntington Beach | Seal Beach | 18070201 |

| City ID | City Name | Watersheds | HUC |
|---------|------------------------|--------------------|----------|
| | | Santa Ana | 18070203 |
| 140 | Irvine | Newport Bay | 18070204 |
| 141 | La Habra | San Gabriel | 18070106 |
| 142 | La Palma | San Gabriel | 18070106 |
| 143 | Laguna Beach | Aliso-San Onofre | 18070301 |
| 144 | Laguna Hills | Newport Bay | 18070204 |
| | | Aliso-San Onofre | 18070301 |
| 145 | Laguna Niguel | Aliso-San Onofre | 18070301 |
| 146 | Laguna Woods | Newport Bay | 18070204 |
| | | Aliso-San Onofre | 18070301 |
| 147 | Lake Forest | Newport Bay | 18070204 |
| | | Aliso-San Onofre | 18070301 |
| 148 | Los Alamitos | San Gabriel | 18070106 |
| | | Seal Beach | 18070201 |
| 149 | Mission Viejo | Aliso-San Onofre | 18070301 |
| 150 | Newport Beach | Santa Ana | 18070203 |
| | | Newport Bay | 18070204 |
| | | Aliso-San Onofre | 18070301 |
| 151 | Orange | Seal Beach | 18070201 |
| | | Santa Ana | 18070203 |
| | | Newport Bay | 18070204 |
| 152 | Placentia | San Gabriel | 18070106 |
| 153 | Rancho Santa Margarita | Aliso-San Onofre | 18070301 |
| 154 | San Clemente | Aliso-San Onofre | 18070301 |
| 155 | San Juan Capistrano | Aliso-San Onofre | 18070301 |
| 156 | Santa Ana | Seal Beach | 18070201 |
| | | Santa Ana | 18070203 |
| | | Newport Bay | 18070204 |
| 157 | Seal Beach | San Gabriel | 18070106 |
| | | Seal Beach | 18070201 |
| 158 | Stanton | Seal Beach | 18070201 |
| 159 | Tustin | Newport Bay | 18070204 |
| 160 | Villa Park | Santa Ana | 18070203 |
| 161 | Westminster | Seal Beach | 18070201 |
| 162 | Yorba Linda | San Gabriel | 18070106 |
| | | Santa Ana | 18070203 |
| 163 | Banning | San Jacinto | 18070202 |
| | | Santa Ana | 18070203 |
| | | Salton Sea | 18100200 |
| 164 | Beaumont | San Jacinto | 18070202 |
| | | Santa Ana | 18070203 |
| 165 | Blythe | Imperial Reservoir | 15030104 |
| | | Southern Mojave | 18100100 |
| 166 | Calimesa | Santa Ana | 18070203 |
| 167 | Canyon Lake | San Jacinto | 18070202 |
| 168 | Cathedral City | Salton Sea | 18100200 |

| City ID | City Name | Watersheds | HUC |
|----------------|--------------------|-------------------|------------|
| 169 | Coachella | Salton Sea | 18100200 |
| 170 | Corona | Santa Ana | 18070203 |
| 171 | Desert Hot Springs | Salton Sea | 18100200 |
| 172 | Hemet | San Jacinto | 18070202 |
| | | Santa Margarita | 18070302 |
| 173 | Indian Wells | Salton Sea | 18100200 |
| 174 | Indio | Salton Sea | 18100200 |
| 175 | La Quinta | Salton Sea | 18100200 |
| 176 | Lake Elsinore | San Jacinto | 18070202 |
| | | Santa Ana | 18070203 |
| 177 | Moreno Valley | San Jacinto | 18070202 |
| | | Santa Ana | 18070203 |
| 178 | Murrieta | San Jacinto | 18070202 |
| | | Santa Margarita | 18070302 |
| 179 | Norco | Santa Ana | 18070203 |
| 180 | Palm Desert | Salton Sea | 18100200 |
| 181 | Palm Springs | Salton Sea | 18100200 |
| 182 | Perris | San Jacinto | 18070202 |
| 183 | Rancho Mirage | Salton Sea | 18100200 |
| 184 | Riverside | San Jacinto | 18070202 |
| | | Santa Ana | 18070203 |
| 185 | San Jacinto | San Jacinto | 18070202 |
| 186 | Temecula | Santa Margarita | 18070302 |

Appendix B: Metadata of the Individual GIS Layers

1. Title: Counties and County Equivalents Boundaries in the United States [Figure 1-1]

Citation

Originator: U.S. Environmental Protection Agency/Office of Water/OST

Publication Date: 1998-02-27

Publication Place: Washington DC

Publisher: US EPA

Online Linkage: <<http://www.epa.gov/OST/BASINS/>>

Description

Abstract:

This coverage is of the county boundaries of the conterminous United States. It was derived from the U.S. Geological Survey State Boundaries, which were derived from Digital Line Graph (DLG) files representing the 1:2,000,000-scale map in the National Atlas of the United States.

Purpose:

This coverage is intended as a basemap for a variety of applications.

Time Period of Content:

Time Period Information:

Single Date/Time:

Calendar_Date: 1994

Currentness Reference: publication date

Spatial Reference Information

Horizontal Coordinate System Definition:

Geographic:

Latitude Resolution: 0.0001

Longitude Resolution: 0.0001

Geographic Coordinate Units: Decimal Degrees

Geodetic Model:

Horizontal Datum Name: North American Datum of 1983

Ellipsoid Name: Geodetic Reference System 80

Semi-major Axis: 6378137

Denominator of Flattening Ratio: 298.257

2. Title: City Boundaries (1990 TIGER) [Figure 1-2 ~Figure 1-9]

| Citation Information | |
|--------------------------------|--|
| Title: | City Boundaries (1990 TIGER) |
| Originator: | Teale GIS Solutions Group |
| Publication Date: | 1997-01-01 |
| Other Citation Details: | This is NAD 27 datum in Albers projection. Measured unit in meters. Captue method unknown. |
| Identification Information | |
| Abstract: | The 'CITY90' layer contains 1990 Census Federal place code boundaries that have been clipped by the county tile outline. The Federal place codes define polygons that are cities or census designated places or are unclassified as to type. |
| Purpose: | To provide information about California city boundaries to the public. |
| Time Period: | Start: 1997-01-01 End: 1997-12-31 |
| Currentness: | Publication Date |
| Progress: | Complete |
| Update Frequency: | Annually |
| Places: | Place Name of Bounding Box: California Other Place Names: California |
| Geographic Region: | West: -124.0000 East: -114.0000 North: 42.0000 South: 32.0000 |
| Themes: | Cultural Geography, City boundaries, |
| Access Limitations: | <i>No Restrictions</i> |
| Use Limitations: | <i>No Redistribution</i> |
| Data Contact: | Metadata Administrator |
| Distribution Information | |
| Online Link: | http://gis.ca.gov/casil/gis.ca.gov/teale/city90a/ |
| Metadata Information | |
| Date: | 1997-12-24 |

3. Hydrologic Unit Boundaries of the Conterminous United States [Figure 1-10]

Citation

Originator: Environmental Protection Agency, Office of Water/OST

Publication Date: 1998

Publication Place: Washington DC

Publisher: US EPA

Online Linkage:

USGS huc250k <<http://water.usgs.gov/lookup/getspatial?/huc250k>>

EPA ESDLS

BASINS model and data <<http://www.epa.gov/OST/BASINS/>>

Description

Abstract:

This metadata describes various delineations of watershed boundaries being stored in the EPA Spatial Data Library System (ESDLS). These delineations are based on the Hydrologic Unit Maps published by the U.S.

Geological Survey Office of Water Data Coordination, together with the list descriptions and name of region, subregion, accounting units, and cataloging units. This metadata set describes the spatial data sets as they exist after downloading the data from ESDLS.

The changes made to the data sets from ESDLS are as follows:

- 1) Reprojected the ARC/INFO coverages to a geographic projection.
- 2) Derived accounting unit and cataloging unit layers only from original data.
- 3) Converted ARC/INFO coverages to Arcview Shapefiles with ARCSHAPE command in Environmental Systems Research Institute (ESRI) GIS software.

Purpose:

These data sets are intended to support watershed analysis in BASINS.

Time Period of Content:

Time Period Information:

Range of Dates/Times:

Beginning Date: Unknown

Ending Date: Unknown

Currentness Reference: publication date

Spatial Reference Information

Horizontal Coordinate System Definition:

Geographic:

Latitude Resolution: 0.0001

Longitude Resolution: 0.0001

Geographic Coordinate Units: Decimal Degrees

Geodetic Model:

Horizontal Datum Name: North American Datum of 1983

Ellipsoid Name: Geodetic Reference System 80

Semi-major Axis: 6378137

Denominator of Flattening Ratio: 298.257

4. Hydrologic Basins (Hydrologic Sub-units) [Figures 1-11 to 1-18]

Citation Information

| | |
|-------------------------|---|
| Title: | Hydrologic Basins |
| Originator: | Teale GIS Solutions Group |
| Publication Date: | 1997-01-01 |
| Other Citation Details: | This is NAD 27 datum in Albers projection. Measurement unit in meters. Captured by manual digitizing. |

Identification Information

| | |
|-----------|---|
| Abstract: | The coverage hbas2 was prepared by the California department of Fish and Game (DFG) as a task within an interagency agreement for geographic information system (GIS) support to the California State Water Resources Control Board (SWRCB) Non-Point Source (NPS) Unit. Hbas2 is a statewide version of the Teale GIS Technology Center (Teale) County |
|-----------|---|

| | | | | |
|---------------------------------|---|-----------------|----------------|----------------|
| | Library data layer for hydrologic basins, called hbsa. DFG performed various corrections to the original data, such as basin coding, sliver polygon removal, and digitizing of missing boundaries. The intended use of hbsa2 is as an interim reference in digital form, accurately (but not precisely) corresponding to SWRCB-delineated basins, and as a cross-reference to Department of Water Resources (DWR) basin codes as presented in the Areal Designation map of February 10, 1981 and in "Hydrologic Data", Bulletin 130-85 (DWR, May 1988). | | | |
| Purpose: | To provide information about hydrologic data to the public. | | | |
| Time Period: | Start: 1997-01-01 | End: 1997-12-31 | | |
| Currentness: | Publication Date | | | |
| Progress: | Complete | | | |
| Update | | | | |
| Frequency: | As Needed | | | |
| Places: | Place Name of Bounding Box: Channel Islands National Park | | | |
| | Other Place Names: Channel Islands National Park | | | |
| Geographic Region: | West: -119.2300 | East: -119.2300 | North: 34.0000 | South: 34.0000 |
| Themes: | Physical Geography, Water resources, | | | |
| Access | | | | |
| Limitations: | <i>No Restrictions</i> | | | |
| Use | | | | |
| Limitations: | <i>No Redistribution</i> | | | |
| Data Contact: | Metadata Administrator | | | |
| Distribution Information | | | | |
| Online Link: | http://gis.ca.gov/casil/gis.ca.gov/teale/hbsa2/ | | | |
| Metadata Information | | | | |
| Date: | 1997-12-24 | | | |

5. National Hydrography Dataset CA SWRCB [Figure 1-19]

| | |
|-----------------------------------|---|
| Citation Information | |
| Title: | National Hydrography Dataset CA SWRCB |
| Originator: | U.S. Geological Survey in cooperation with U.S. Environmental Pr |
| Publication Date: | <i>Unknown</i> |
| Identification Information | |
| Abstract: | The National Hydrography Dataset (NHD) is a feature-based database that interconnects and uniquely identifies the stream segments or reaches that comprise the nations surface water drainage system. It is based initially on the content of the U.S. Geological Survey 1:100,000-scale Digital Line Graph (DLG) hydrography data, integrated with reach-related information from the U.S. Environmental Protection Agency Reach File Version 3.0 (RF3). More specifically, it contains reach codes for networked features and isolated lakes, flow direction, names, stream level, and centerline representations for areal water bodies. Reaches are also defined to represent waterbodies and the approximate shorelines of the Great Lakes, the Atlantic and Pacific Oceans, and the Gulf of Mexico. The NHD also incorporates the National Spatial Data Infrastructure framework criteria set out by the Federal Geographic Data Committee. |
| Purpose: | The National Hydrography Dataset combines elements of the DLG and RF3: spatial accuracy and comprehensiveness from the DLG and network relationships, names, stream level, and a unique identifier (reach code) for surface water features from RF3. The NHD supersedes DLG and RF3 by incorporating them, not by replacing them. Users of DLG and RF3 will find the National Hydrography Dataset both familiar and greatly expanded and refined. The NHD provides a national framework for assigning reach addresses to water-related entities, such as industrial dischargers, drinking water supplies, fish habitat areas, wild and scenic rivers. Reach addresses establish the locations of these entities relative to one another within the NHD surface water drainage network in a manner similar to street |

addresses. Once linked to the NHD by their reach addresses, the upstream/downstream relationships of these water-related entities and any associated information about them can be analyzed using software tools ranging from spreadsheets to geographic information systems (GIS). GIS can also be used to combine NHD-based network analysis with other data layers, such as soils, land use and population, to help better understand and display their respective effects upon one another. Furthermore, because the NHD provides a nationally consistent framework for addressing and analysis, water-related information linked to reach addresses by one organization (national, state, local) can be shared with other organizations and easily integrated into many different types of applications to the benefit of all. The National Hydrography Dataset is designed to provide comprehensive coverage of hydrologic data for the U.S. While initially based on 1:100,000-scale data, the NHD is designed to incorporate - and encourage the development of - higher-resolution data required by many users. It will facilitate the improved integration of water-related data in support of the application requirements of a growing national user community and will enable shared maintenance and enhancement.

Appendix C: Cities by SCAG County

| Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura |
|-----------------|--------------------|------------------------|--------------------|-----------------------|------------------|
| Brawley | Agoura Hills | Aliso Viejo | Banning | Adelanto | Camarillo |
| Calexico | Alhambra | Anaheim | Beaumont | Apple Valley | Fillmore |
| Calipatria | Arcadia | Brea | Blythe | Barstow | Moorpark |
| El Centro | Artesia | Buena Park | Calimesa | Big Bear Lake | Ojai |
| Holtville | Avalon | Costa Mesa | Canyon Lake | Chino | Oxnard |
| Imperial | Azusa | Cypress | Cathedral City | Chino Hills | Port Hueneme |
| Westmorland | Baldwin Park | Dana Point | Coachella | Colton | San Buenaventura |
| | Bell | Fountain Valley | Corona | Fontana | Santa Paula |
| | Bellflower | Fullerton | Desert Hot Springs | Grand Terrace | Simi Valley |
| | Bell Gardens | Garden Grove | Hemet | Hesperia | Thousand Oaks |
| | Beverly Hills | Huntington Beach | Indian Wells | Highland | |
| | Bradbury | Irvine | Indio | Loma Linda | |
| | Burbank | Laguna Beach | Lake Elsinore | Montclair | |
| | Calabasas | Laguna Hills | La Quinta | Needles | |
| | Carson | Laguna Niguel | Moreno Valley | Ontario | |
| | Cerritos | Laguna Woods | Murrieta | Rancho Cucamonga | |
| | Claremont | La Habra | Norco | Redlands | |
| | Commerce | Lake Forest | Palm Desert | Rialto | |
| | Compton | La Palma | Palm Springs | San Bernardino | |
| | Covina | Los Alamitos | Perris | Twentynine Palms | |
| | Cudahy | Mission Viejo | Rancho Mirage | Upland | |
| | Culver City | Newport Beach | Riverside | Victorville | |
| | Diamond Bar | Orange | San Jacinto | Yucaipa | |
| | Downey | Placentia | Temecula | Yucca Valley | |
| | Duarte | Rancho Santa Margarita | | | |
| | El Monte | San Clemente | | | |
| | El Segundo | San Juan Capistrano | | | |
| | Gardena | Santa Ana | | | |
| | Glendale | Seal Beach | | | |

| Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura |
|-----------------|----------------------|---------------|------------------|-----------------------|----------------|
| | Glendora | Stanton | | | |
| | Hawaiian Gardens | Tustin | | | |
| | Hawthorne | Villa Park | | | |
| | Hermosa Beach | Westminster | | | |
| | Hidden Hills | Yorba Linda | | | |
| | Huntington Park | | | | |
| | Industry | | | | |
| | Inglewood | | | | |
| | Irwindale | | | | |
| | La Canada Flintridge | | | | |
| | La Habra Heights | | | | |
| | Lakewood | | | | |
| | La Mirada | | | | |
| | Lancaster | | | | |
| | La Puente | | | | |
| | La Verne | | | | |
| | Lawndale | | | | |
| | Lomita | | | | |
| | Long Beach | | | | |
| | Los Angeles | | | | |
| | Lynwood | | | | |
| | Malibu | | | | |
| | Manhattan Beach | | | | |
| | Maywood | | | | |
| | Monrovia | | | | |
| | Montebello | | | | |
| | Monterey Park | | | | |
| | Norwalk | | | | |
| | Palmdale | | | | |
| | Palos Verdes Estates | | | | |
| | Paramount | | | | |
| | Pasadena | | | | |
| | Pico Rivera | | | | |
| | Pomona | | | | |
| | Rancho Palos Verdes | | | | |
| | Redondo | | | | |

| Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura |
|-----------------|--------------------------|---------------|------------------|-----------------------|----------------|
| | Beach | | | | |
| | Rolling Hills | | | | |
| | Rolling Hills Estates | | | | |
| | Rosemead | | | | |
| | San Dimas | | | | |
| | San Fernando | | | | |
| | San Gabriel | | | | |
| | San Marino | | | | |
| | Santa Clarita | | | | |
| | Santa Fe Springs | | | | |
| | Santa Monica | | | | |
| | Sierra Madre | | | | |
| | Signal Hill | | | | |
| | South El Monte | | | | |
| | South Gate | | | | |
| | South Pasadena | | | | |
| | Temple City | | | | |
| | Torrance | | | | |
| | Vernon | | | | |
| | Walnut | | | | |
| | West Covina | | | | |
| | West Hollywood | | | | |
| | Westlake Village | | | | |
| | Whittier | | | | |

Appendix D: Hydrologic Units by SCAG County

| COUNTY | Watershed | HUC |
|----------------|---------------------------------------|----------|
| Imperial | Imperial Reservoir | 15030104 |
| | Lower Colorado | 15030107 |
| | Salton Sea | 18100200 |
| | Southern Mojave | 18100100 |
| Los Angeles | Antelope-Fremont Valleys | 18090206 |
| | Calleguas | 18070103 |
| | Dominguez Channel | (HSU) |
| | Los Angeles | 18070105 |
| | Los Cerritos Channel | (HSU) |
| | Middle Kern-Upper Tehachapi-Grapevine | 18030003 |
| | Mojave | 18090208 |
| | San Gabriel | 18070106 |
| | San Pedro Channel Islands | 18070107 |
| | Santa Ana | 18070203 |
| | Santa Clara | 18070102 |
| | Santa Monica Bay | 18070104 |
| Orange | Aliso-San Onofre | 18070301 |
| | Newport Bay | 18070204 |
| | San Gabriel | 18070106 |
| | San Jacinto | 18070202 |
| | Santa Ana | 18070203 |
| | Seal Beach | 18070201 |
| Riverside | Aliso-San Onofre | 18070301 |
| | Imperial Reservoir | 15030104 |
| | Salton Sea | 18100200 |
| | San Jacinto | 18070202 |
| | San Luis Rey-Escondido | 18070303 |
| | Santa Ana | 18070203 |
| | Santa Margarita | 18070302 |
| | Southern Mojave | 18100100 |
| San Bernardino | Antelope-Fremont Valleys | 18090206 |
| | Coyote-Cuddeback Lakes | 18090207 |
| | Death Valley-Lower Amargosa | 18090203 |
| | Havasui-Mohave Lakes | 15030101 |
| | Imperial Reservoir | 15030104 |
| | Indian Wells-Searles Valleys | 18090205 |
| | Ivanpah-Pahrump Valleys | 16060015 |
| | Mojave | 18090208 |
| | Panamint Valley | 18090204 |
| | Piute Wash | 15030102 |
| | Salton Sea | 18100200 |
| | San Gabriel | 18070106 |
| | Santa Ana | 18070203 |

| COUNTY | Watershed | HUC |
|---------------|---------------------------------------|------------|
| | Southern Mojave | 18100100 |
| | Upper Amargosa | 18090202 |
| Ventura | Calleguas | 18070103 |
| | Cuyama | 18060007 |
| | Los Angeles | 18070105 |
| | Middle Kern-Upper Tehachapi-Grapevine | 18030003 |
| | Santa Barbara Channel Islands | 18060014 |
| | Santa Barbara Coastal | 18060013 |
| | Santa Clara | 18070102 |
| | Santa Monica Bay | 18070104 |
| | Santa Ynez | 18060010 |
| | Ventura | 18070101 |

Appendix E: Correspondence between Hydrologic Sub-Units (by NHCODE) and Cities in the SCAG Region

| NHCODE | City |
|---------------|---------------|
| 628.2 | Adelanto |
| 404.22 | Agoura Hills |
| 404.23 | Agoura Hills |
| 404.24 | Agoura Hills |
| 404.25 | Agoura Hills |
| 405.41 | Alhambra |
| 801.11 | Aliso Viejo |
| 901.12 | Aliso Viejo |
| 901.13 | Aliso Viejo |
| 801.11 | Anaheim |
| 801.12 | Anaheim |
| 801.13 | Anaheim |
| 845.61 | Anaheim |
| 845.63 | Anaheim |
| 628.2 | Apple Valley |
| 628.3 | Apple Valley |
| 405.31 | Arcadia |
| 405.33 | Arcadia |
| 405.41 | Arcadia |
| 405.15 | Artesia |
| 406.4 | Avalon |
| 405.41 | Azusa |
| 405.42 | Azusa |
| 405.43 | Azusa |
| 405.41 | Baldwin Park |
| 719.31 | Banning |
| 719.32 | Banning |
| 801.69 | Banning |
| 802.21 | Banning |
| 628.3 | Barstow |
| 628.5 | Barstow |
| 719.31 | Beaumont |
| 801.62 | Beaumont |
| 801.63 | Beaumont |
| 802.21 | Beaumont |
| 405.15 | Bell |
| 405.15 | Bell Gardens |
| 405.15 | Bellflower |
| 405.13 | Beverly Hills |
| 405.14 | Beverly Hills |
| 405.15 | Beverly Hills |

| NHCODE | City |
|---------------|----------------|
| 801.71 | Big Bear Lake |
| 801.73 | Big Bear Lake |
| 715.4 | Blythe |
| 717.1 | Blythe |
| 405.41 | Bradbury |
| 723.1 | Brawley |
| 405.62 | Brea |
| 845.62 | Brea |
| 845.63 | Brea |
| 405.15 | Buena Park |
| 845.61 | Buena Park |
| 405.21 | Burbank |
| 404.11 | Calabasas |
| 404.21 | Calabasas |
| 404.22 | Calabasas |
| 405.21 | Calabasas |
| 723.1 | Calexico |
| 801.61 | Calimesa |
| 801.62 | Calimesa |
| 801.63 | Calimesa |
| 801.64 | Calimesa |
| 801.67 | Calimesa |
| 801.69 | Calimesa |
| 723.1 | Calipatria |
| 403.11 | Camarillo |
| 403.12 | Camarillo |
| 403.61 | Camarillo |
| 403.63 | Camarillo |
| 403.64 | Camarillo |
| 802.11 | Canyon Lake |
| 802.12 | Canyon Lake |
| 405.12 | Carson |
| 405.15 | Carson |
| 719.41 | Cathedral City |
| 719.42 | Cathedral City |
| 719.46 | Cathedral City |
| 719.47 | Cathedral City |
| 405.15 | Cerritos |
| 481.21 | Chino |
| 801.21 | Chino |
| 405.62 | Chino Hills |
| 405.63 | Chino Hills |
| 481.21 | Chino Hills |
| 801.13 | Chino Hills |
| 801.21 | Chino Hills |
| 845.62 | Chino Hills |

| NHCODE | City |
|---------------|--------------------|
| 845.63 | Chino Hills |
| 405.52 | Claremont |
| 405.53 | Claremont |
| 481.21 | Claremont |
| 481.22 | Claremont |
| 481.23 | Claremont |
| 719.45 | Coachella |
| 719.47 | Coachella |
| 801.27 | Colton |
| 801.44 | Colton |
| 801.45 | Colton |
| 801.52 | Colton |
| 405.15 | Commerce |
| 405.12 | Compton |
| 405.15 | Compton |
| 801.13 | Corona |
| 801.21 | Corona |
| 801.25 | Corona |
| 801.26 | Corona |
| 801.32 | Corona |
| 801.11 | Costa Mesa |
| 405.41 | Covina |
| 405.15 | Cudahy |
| 405.12 | Culver City |
| 405.13 | Culver City |
| 405.15 | Culver City |
| 405.15 | Cypress |
| 801.11 | Cypress |
| 845.61 | Cypress |
| 901.14 | Dana Point |
| 901.2 | Dana Point |
| 901.3 | Dana Point |
| 719.42 | Desert Hot Springs |
| 719.43 | Desert Hot Springs |
| 405.41 | Diamond Bar |
| 405.51 | Diamond Bar |
| 405.62 | Diamond Bar |
| 481.21 | Diamond Bar |
| 845.62 | Diamond Bar |
| 405.15 | Downey |
| 405.41 | Duarte |
| 405.42 | Duarte |
| 405.43 | Duarte |
| 723.1 | El Centro |
| 405.41 | El Monte |
| 405.12 | El Segundo |

| NHCODE | City |
|---------------|------------------|
| 403.31 | Fillmore |
| 801.21 | Fontana |
| 801.27 | Fontana |
| 801.42 | Fontana |
| 801.43 | Fontana |
| 801.44 | Fontana |
| 801.11 | Fountain Valley |
| 405.15 | Fullerton |
| 845.61 | Fullerton |
| 845.62 | Fullerton |
| 845.63 | Fullerton |
| 801.11 | Garden Grove |
| 845.61 | Garden Grove |
| 405.12 | Gardena |
| 405.15 | Glendale |
| 405.21 | Glendale |
| 405.24 | Glendale |
| 405.25 | Glendale |
| 405.31 | Glendale |
| 405.32 | Glendale |
| 405.41 | Glendora |
| 405.42 | Glendora |
| 405.43 | Glendora |
| 405.44 | Glendora |
| 801.27 | Grand Terrace |
| 801.44 | Grand Terrace |
| 801.45 | Grand Terrace |
| 405.15 | Hawaiian Gardens |
| 405.12 | Hawthorne |
| 802.13 | Hemet |
| 802.15 | Hemet |
| 802.21 | Hemet |
| 902.36 | Hemet |
| 405.12 | Hermosa Beach |
| 628.2 | Hesperia |
| 404.22 | Hidden Hills |
| 405.21 | Hidden Hills |
| 801.52 | Highland |
| 801.57 | Highland |
| 801.58 | Highland |
| 723.1 | Holtville |
| 801.11 | Huntington Beach |
| 405.15 | Huntington Park |
| 723.1 | Imperial |
| 719.47 | Indian Wells |
| 719.45 | Indio |

| NHCODE | City |
|---------------|-------------------|
| 719.46 | Indio |
| 719.47 | Indio |
| 405.15 | Industry |
| 405.41 | Industry |
| 405.62 | Industry |
| 405.12 | Inglewood |
| 405.15 | Inglewood |
| 801.11 | Irvine |
| 901.12 | Irvine |
| 405.41 | Irwindale |
| 405.42 | Irwindale |
| 405.21 | La Canada-Flntrdg |
| 405.24 | La Canada-Flntrdg |
| 405.31 | La Canada-Flntrdg |
| 405.32 | La Canada-Flntrdg |
| 405.15 | La Habra |
| 845.61 | La Habra |
| 845.62 | La Habra |
| 405.15 | La Habra Heights |
| 405.41 | La Habra Heights |
| 405.62 | La Habra Heights |
| 845.62 | La Habra Heights |
| 405.15 | La Mirada |
| 845.61 | La Mirada |
| 405.15 | La Palma |
| 845.61 | La Palma |
| 405.41 | La Puente |
| 719.47 | La Quinta |
| 405.41 | La Verne |
| 405.44 | La Verne |
| 405.52 | La Verne |
| 405.53 | La Verne |
| 901.11 | Laguna Beach |
| 901.12 | Laguna Beach |
| 901.13 | Laguna Beach |
| 901.14 | Laguna Beach |
| 801.11 | Laguna Hills |
| 901.13 | Laguna Hills |
| 901.2 | Laguna Hills |
| 901.13 | Laguna Niguel |
| 901.14 | Laguna Niguel |
| 901.2 | Laguna Niguel |
| 801.11 | Laguna Woods |
| 901.12 | Laguna Woods |
| 901.13 | Laguna Woods |
| 801.34 | Lake Elsinore |

| NHCODE | City |
|---------------|---------------|
| 801.35 | Lake Elsinore |
| 802.11 | Lake Elsinore |
| 802.12 | Lake Elsinore |
| 802.31 | Lake Elsinore |
| 802.32 | Lake Elsinore |
| 801.11 | Lake Forest |
| 801.12 | Lake Forest |
| 901.13 | Lake Forest |
| 405.15 | Lakewood |
| 626.5 | Lancaster |
| 405.12 | Lawndale |
| 801.44 | Loma Linda |
| 801.45 | Loma Linda |
| 801.52 | Loma Linda |
| 801.53 | Loma Linda |
| 801.62 | Loma Linda |
| 405.12 | Lomita |
| 405.12 | Long Beach |
| 405.15 | Long Beach |
| 845.61 | Long Beach |
| 405.15 | Los Alamitos |
| 801.11 | Los Alamitos |
| 845.61 | Los Alamitos |
| 404.11 | Los Angeles |
| 405.11 | Los Angeles |
| 405.12 | Los Angeles |
| 405.13 | Los Angeles |
| 405.14 | Los Angeles |
| 405.15 | Los Angeles |
| 405.21 | Los Angeles |
| 405.22 | Los Angeles |
| 405.23 | Los Angeles |
| 405.24 | Los Angeles |
| 405.25 | Los Angeles |
| 405.41 | Los Angeles |
| 405.15 | Lynwood |
| 404.12 | Malibu |
| 404.13 | Malibu |
| 404.14 | Malibu |
| 404.15 | Malibu |
| 404.16 | Malibu |
| 404.21 | Malibu |
| 404.31 | Malibu |
| 404.32 | Malibu |
| 404.33 | Malibu |
| 404.34 | Malibu |

| NHCODE | City |
|---------------|-----------------|
| 404.35 | Malibu |
| 404.36 | Malibu |
| 404.37 | Malibu |
| 404.41 | Malibu |
| 404.42 | Malibu |
| 404.43 | Malibu |
| 404.44 | Malibu |
| 405.12 | Manhattan Beach |
| 405.15 | Maywood |
| 901.13 | Mission Viejo |
| 901.2 | Mission Viejo |
| 405.33 | Monrovia |
| 405.41 | Monrovia |
| 405.43 | Monrovia |
| 481.21 | Montclair |
| 801.21 | Montclair |
| 405.15 | Montebello |
| 405.41 | Montebello |
| 405.15 | Monterey Park |
| 405.41 | Monterey Park |
| 403.62 | Moorpark |
| 403.63 | Moorpark |
| 403.65 | Moorpark |
| 801.27 | Moreno Valley |
| 801.45 | Moreno Valley |
| 802.11 | Moreno Valley |
| 802.21 | Moreno Valley |
| 802.12 | Murrieta |
| 902.31 | Murrieta |
| 902.32 | Murrieta |
| 902.33 | Murrieta |
| 902.42 | Murrieta |
| 713.1 | Needles |
| 713.3 | Needles |
| 801.11 | Newport Beach |
| 901.11 | Newport Beach |
| 801.21 | Norco |
| 801.25 | Norco |
| 801.26 | Norco |
| 405.15 | Norwalk |
| 402.2 | Ojai |
| 402.32 | Ojai |
| 801.21 | Ontario |
| 801.11 | Orange |
| 801.12 | Orange |
| 801.13 | Orange |

| NHCODE | City |
|---------------|------------------------|
| 403.11 | Oxnard |
| 719.47 | Palm Desert |
| 719.41 | Palm Springs |
| 719.42 | Palm Springs |
| 719.47 | Palm Springs |
| 403.53 | Palmdale |
| 403.54 | Palmdale |
| 403.55 | Palmdale |
| 626.5 | Palmdale |
| 626.7 | Palmdale |
| 626.8 | Palmdale |
| 405.11 | Palos Verdes Est |
| 405.12 | Palos Verdes Est |
| 405.15 | Paramount |
| 405.15 | Pasadena |
| 405.25 | Pasadena |
| 405.31 | Pasadena |
| 405.32 | Pasadena |
| 405.41 | Pasadena |
| 802.11 | Perris |
| 802.12 | Perris |
| 405.15 | Pico Rivera |
| 405.41 | Pico Rivera |
| 845.61 | Placentia |
| 845.63 | Placentia |
| 405.41 | Pomona |
| 405.51 | Pomona |
| 405.52 | Pomona |
| 481.21 | Pomona |
| 481.22 | Pomona |
| 801.21 | Pomona |
| 403.11 | Port Hueneme |
| 801.21 | Rancho Cucamonga |
| 801.24 | Rancho Cucamonga |
| 719.47 | Rancho Mirage |
| 405.11 | Rancho Palos Vrds |
| 405.12 | Rancho Palos Vrds |
| 901.13 | Rancho Santa Margarita |
| 901.2 | Rancho Santa Margarita |
| 801.45 | Redlands |
| 801.52 | Redlands |
| 801.53 | Redlands |
| 801.54 | Redlands |
| 801.55 | Redlands |
| 801.56 | Redlands |
| 801.58 | Redlands |

| NHCODE | City |
|---------------|---------------------|
| 801.61 | Redlands |
| 801.62 | Redlands |
| 405.12 | Redondo Beach |
| 801.21 | Rialto |
| 801.27 | Rialto |
| 801.42 | Rialto |
| 801.43 | Rialto |
| 801.44 | Rialto |
| 801.52 | Rialto |
| 801.59 | Rialto |
| 801.21 | Riverside |
| 801.25 | Riverside |
| 801.26 | Riverside |
| 801.27 | Riverside |
| 802.11 | Riverside |
| 405.11 | Rolling Hills |
| 405.12 | Rolling Hills |
| 405.11 | Rolling Hills Est |
| 405.12 | Rolling Hills Est |
| 405.15 | Rosemead |
| 405.41 | Rosemead |
| 801.44 | San Bernardino |
| 801.52 | San Bernardino |
| 801.59 | San Bernardino |
| 401 | San Buenaventura |
| 402.1 | San Buenaventura |
| 402.2 | San Buenaventura |
| 403.11 | San Buenaventura |
| 403.21 | San Buenaventura |
| 901.2 | San Clemente |
| 901.3 | San Clemente |
| 901.4 | San Clemente |
| 405.41 | San Dimas |
| 405.44 | San Dimas |
| 405.51 | San Dimas |
| 405.52 | San Dimas |
| 405.21 | San Fernando |
| 405.22 | San Fernando |
| 405.41 | San Gabriel |
| 802.15 | San Jacinto |
| 802.21 | San Jacinto |
| 901.2 | San Juan Capistrano |
| 901.3 | San Juan Capistrano |
| 405.31 | San Marino |
| 405.41 | San Marino |
| 801.11 | Santa Ana |

| NHCODE | City |
|---------------|------------------|
| 403.51 | Santa Clarita |
| 405.21 | Santa Clarita |
| 405.15 | Santa Fe Springs |
| 405.13 | Santa Monica |
| 403.21 | Santa Paula |
| 405.12 | Seal Beach |
| 405.15 | Seal Beach |
| 801.11 | Seal Beach |
| 845.61 | Seal Beach |
| 405.31 | Sierra Madre |
| 405.33 | Sierra Madre |
| 405.41 | Sierra Madre |
| 405.12 | Signal Hill |
| 405.15 | Signal Hill |
| 403.62 | Simi Valley |
| 403.65 | Simi Valley |
| 403.67 | Simi Valley |
| 403.68 | Simi Valley |
| 404.22 | Simi Valley |
| 404.23 | Simi Valley |
| 405.21 | Simi Valley |
| 405.41 | South El Monte |
| 405.15 | South Gate |
| 405.15 | South Pasadena |
| 405.31 | South Pasadena |
| 405.41 | South Pasadena |
| 801.11 | Stanton |
| 845.61 | Stanton |
| 902.32 | Temecula |
| 902.33 | Temecula |
| 902.42 | Temecula |
| 902.51 | Temecula |
| 902.52 | Temecula |
| 405.41 | Temple City |
| 403.12 | Thousand Oaks |
| 403.63 | Thousand Oaks |
| 403.64 | Thousand Oaks |
| 403.65 | Thousand Oaks |
| 403.67 | Thousand Oaks |
| 403.68 | Thousand Oaks |
| 404.23 | Thousand Oaks |
| 404.25 | Thousand Oaks |
| 404.26 | Thousand Oaks |
| 404.47 | Thousand Oaks |
| 405.11 | Torrance |
| 405.12 | Torrance |

| NHCODE | City |
|---------------|------------------|
| 801.11 | Tustin |
| 709.1 | Twentynine Palms |
| 709.2 | Twentynine Palms |
| 481.21 | Upland |
| 481.22 | Upland |
| 481.23 | Upland |
| 801.21 | Upland |
| 801.23 | Upland |
| 801.24 | Upland |
| 405.15 | Vernon |
| 628.2 | Victorville |
| 801.11 | Villa Park |
| 405.41 | Walnut |
| 405.51 | Walnut |
| 405.41 | West Covina |
| 405.14 | West Hollywood |
| 405.15 | West Hollywood |
| 404.23 | Westlake Village |
| 404.24 | Westlake Village |
| 404.25 | Westlake Village |
| 404.26 | Westlake Village |
| 404.37 | Westlake Village |
| 801.11 | Westminster |
| 723.1 | Westmorland |
| 405.15 | Whittier |
| 405.41 | Whittier |
| 801.13 | Yorba Linda |
| 845.63 | Yorba Linda |
| 801.56 | Yucaipa |
| 801.58 | Yucaipa |
| 801.61 | Yucaipa |
| 801.64 | Yucaipa |
| 801.65 | Yucaipa |
| 801.66 | Yucaipa |
| 801.67 | Yucaipa |
| 801.68 | Yucaipa |
| 801.69 | Yucaipa |
| 705 | Yucca Valley |
| 708.1 | Yucca Valley |
| 708.2 | Yucca Valley |
| 719.1 | Yucca Valley |
| 719.43 | Yucca Valley |

Appendix F: Hydrologic Sub-Units by SCAG County

| Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura |
|----------|-------------|--------|-----------|----------------|---------|
| 715.4 | 403.41 | 405.12 | 708.1 | 405.43 | 312.3 |
| 715.5 | 403.42 | 405.15 | 709.1 | 405.62 | 314.51 |
| 717.1 | 403.43 | 405.62 | 709.2 | 405.63 | 315.34 |
| 719.47 | 403.51 | 801.11 | 711 | 481.21 | 401 |
| 721 | 403.52 | 801.12 | 712 | 481.22 | 402.1 |
| 722.2 | 403.53 | 801.13 | 715.1 | 481.23 | 402.2 |
| 722.61 | 403.54 | 801.25 | 715.2 | 609.11 | 402.31 |
| 723.1 | 403.55 | 801.31 | 715.3 | 609.13 | 402.32 |
| 723.2 | 403.66 | 801.34 | 715.4 | 609.21 | 403.11 |
| 724 | 403.67 | 802.31 | 715.5 | 609.22 | 403.12 |
| 726 | 404.11 | 845.61 | 716 | 609.23 | 403.21 |
| 727 | 404.12 | 845.62 | 717.1 | 609.24 | 403.22 |
| 728 | 404.13 | 845.63 | 717.2 | 609.42 | 403.31 |
| | 404.14 | 901.11 | 717.3 | 609.44 | 403.32 |
| | 404.15 | 901.12 | 717.4 | 610 | 403.41 |
| | 404.16 | 901.13 | 718 | 611 | 403.42 |
| | 404.21 | 901.14 | 719.1 | 612 | 403.43 |
| | 404.22 | 901.2 | 719.2 | 613.1 | 403.44 |
| | 404.23 | 901.3 | 719.31 | 613.2 | 403.51 |
| | 404.24 | 901.4 | 719.32 | 614 | 403.61 |
| | 404.25 | | 719.41 | 615.1 | 403.62 |
| | 404.26 | | 719.42 | 615.2 | 403.63 |
| | 404.31 | | 719.43 | 616 | 403.64 |
| | 404.32 | | 719.44 | 617 | 403.65 |
| | 404.33 | | 719.45 | 618 | 403.66 |
| | 404.34 | | 719.46 | 619 | 403.67 |
| | 404.35 | | 719.47 | 620.1 | 403.68 |
| | 404.36 | | 720 | 620.6 | 404.22 |
| | 404.37 | | 721 | 620.7 | 404.23 |
| | 404.41 | | 722.11 | 620.8 | 404.25 |
| | 404.42 | | 722.12 | 621.1 | 404.26 |
| | 404.43 | | 722.13 | 621.2 | 404.44 |
| | 404.44 | | 723.1 | 621.3 | 404.45 |
| | 404.45 | | 725 | 624.2 | 404.46 |
| | 405.11 | | 728 | 625.4 | 404.47 |
| | 405.12 | | 801.12 | 626.5 | 404.48 |
| | 405.13 | | 801.13 | 626.6 | 405.21 |
| | 405.14 | | 801.21 | 626.8 | 406.1 |
| | 405.15 | | 801.25 | 627 | 406.2 |
| | 405.21 | | 801.26 | 628.1 | 406.3 |
| | 405.22 | | 801.27 | 628.2 | 556.3 |
| | 405.23 | | 801.31 | 628.3 | |
| | 405.24 | | 801.32 | 628.41 | |

| Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura |
|-----------------|--------------------|---------------|------------------|-----------------------|----------------|
| | 405.25 | | 801.33 | 628.42 | |
| | 405.31 | | 801.34 | 628.5 | |
| | 405.32 | | 801.35 | 628.61 | |
| | 405.33 | | 801.45 | 628.62 | |
| | 405.41 | | 801.61 | 628.71 | |
| | 405.42 | | 801.62 | 628.72 | |
| | 405.43 | | 801.63 | 628.73 | |
| | 405.44 | | 801.64 | 628.81 | |
| | 405.51 | | 801.67 | 628.82 | |
| | 405.52 | | 801.69 | 628.9 | |
| | 405.53 | | 802.11 | 629 | |
| | 405.62 | | 802.12 | 701 | |
| | 405.63 | | 802.13 | 702 | |
| | 406.4 | | 802.14 | 703 | |
| | 406.5 | | 802.15 | 704 | |
| | 481.21 | | 802.21 | 705 | |
| | 481.22 | | 802.22 | 706 | |
| | 481.23 | | 802.23 | 707 | |
| | 556.3 | | 802.31 | 708.1 | |
| | 626.4 | | 802.32 | 708.2 | |
| | 626.5 | | 901.2 | 709.1 | |
| | 626.7 | | 901.4 | 709.2 | |
| | 626.8 | | 902.21 | 710.1 | |
| | 628.1 | | 902.22 | 710.2 | |
| | 801.21 | | 902.23 | 711 | |
| | 845.61 | | 902.31 | 712 | |
| | 845.62 | | 902.32 | 713.1 | |
| | 845.63 | | 902.33 | 713.2 | |
| | | | 902.34 | 713.3 | |
| | | | 902.35 | 713.4 | |
| | | | 902.36 | 714 | |
| | | | 902.41 | 715.1 | |
| | | | 902.42 | 716 | |
| | | | 902.43 | 717.3 | |
| | | | 902.44 | 719.1 | |
| | | | 902.51 | 719.32 | |
| | | | 902.52 | 719.41 | |
| | | | 902.61 | 719.42 | |
| | | | 902.62 | 719.43 | |
| | | | 902.63 | 719.44 | |
| | | | 902.71 | 801.13 | |
| | | | 902.72 | 801.21 | |
| | | | 902.73 | 801.23 | |
| | | | 902.74 | 801.24 | |

| Imperial | Los Angeles | Orange | Riverside | San Bernardino | Ventura |
|-----------------|--------------------|---------------|------------------|-----------------------|----------------|
| | | | 902.81 | 801.27 | |
| | | | 902.82 | 801.41 | |
| | | | 902.83 | 801.42 | |
| | | | 902.84 | 801.43 | |
| | | | 902.91 | 801.44 | |
| | | | 902.92 | 801.45 | |
| | | | | 801.51 | |
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| | | | | 801.72 | |
| | | | | 801.73 | |
| | | | | 845.62 | |
| | | | | 845.63 | |